

Hoard and Hoarding Patterns in the Early Byzantine Balkans

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Under Roman law, a hoard (*thesaurus*) was a collection of valuables hidden for reasons of protection and security, but then forgotten in its hiding place by its original owner, who for whatever reason failed to retrieve his or her belongings. In other words, a hoard existed only when there was no legal owner to claim it or when its owner could not be found any more.¹ For the Roman legislator, therefore, a hoard was the result of a deliberate action to place into hiding a collection of valuables. It had nothing to do with the circumstances (military invasion, social or economic crisis, and the like) leading either to that action or to the resulting failure of the owner to retrieve his or her belongings.

✦ We wish to thank Gabriela Bijovsky, Maja Hadji-Maneva, and Alena Tenchova for information regarding unpublished hoards from Palestine, Macedonia, and Thrace, respectively. We would also like to thank the three anonymous readers for their comments and suggestions. Of course, the conclusions reached here are the sole responsibility of the authors.

1 “Treasure is an ancient deposit of money, memory of which no longer survives, so that it is without an owner; thus what does not belong to another becomes the property of him who finds it. For the rest, if someone should hide something in the ground for gain or out of fear or for safekeeping, it is not treasure and to take it would be theft” (*Digesta* 41.1.31, ed. T. Mommsen and P. Krueger [Berlin, 1868], trans. A. Watson [Philadelphia, 1998]). See also *Digesta* 41.2.44: if a man buries money before going on a journey, and later cannot remember the hiding place, is it still legally his? See C. Morrisson, “La découverte des trésors à l’époque byzantine: Théorie et pratique de l’εὐρήσις θησαυροῦ,” *TM* 8 (1981): 321–43.

Modern numismatists dare to differ. To some, hoarding is the conscious process of selecting and storing away objects of value. In times of inflation and depreciation of coin values, good coins are withdrawn from circulation for hoarding and saving. Under such circumstances, a hoard may be viewed as the result of a strategy of personal defense against the dangers of repeated depreciation of the currency.² Others call “deposit” any number of coins intentionally buried in the ground. “Hoards” are only those deposits which have been buried to be retrieved at a later time.³ According to such views, the burial itself can

2 P. Bruun, “Site Finds and Hoarding Behaviour,” in *Scripta Nummaria Romana: Essays Presented to Humphrey Sutherland*, ed. R. A. G. Carson and C. M. Kraay (London, 1978), 109–23, esp. 114; P. Bruun, “Quantitative Analysis of Hoarding in Periods of Coin Deterioration,” in *Statistique et numismatique: Table ronde organisée par le Centre de Mathématique Sociale de l’École des Hautes Études en Sciences Sociales de Paris et le Séminaire de Numismatique Marcel Hoc de l’Université Catholique de Louvain, Paris, 17–19 septembre 1979*, ed. C. Carcassonne and T. Hackens (Strasbourg, 1981), 355–64. According to Bruun, because the hoarding process typically selects higher quality coins or denominations, hoards reflect the mass of coins in circulation at the time when the monetary system was in balance (as opposed to the time of the burial).

3 R. Kiersnowski, “O tzw. ‘luźnych’ znaleziskach monet wczesnośredniowiecznych w Polsce,” *Wiadomości archeologiczne* 25 (1958): 181–96; S. Tabaczyński, *Archeologia średniowieczna: Problemy, źródła, metody, cele badawcze* (Wrocław, 1987), 184; S. Suchodolski, “Coin Finds and Archaeological Contexts: A Tentative Classification,” in *Theory and Practice of Archaeological Research*, ed. W. Hensel et al. (Warsaw, 1998), 367–79.

be explained in terms of either economics or ritual. In the former case, the valuables are buried for protection in the face of impending disaster of whatever nature. Most authors favoring this explanation see a direct correlation, in every case, between the hoard and military events known from written sources.⁴ On the basis of hoard finds, some have even tried to reconstruct military events unknown from written sources.⁵ Others have expressed serious doubts about the validity of such an approach, especially about attempts to link ancient hoards to specific military events.⁶ It has long been demonstrated that at least in relation to the early Middle Ages and the modern period, an explanation based on warfare and social unrest cannot account for the fact that most hoards with similar closing dates typically show stereotyping by size and denomination.⁷

4 Explanations invoking warfare and social unrest have been first advanced by T. Mommsen, *Histoire de la monnaie romaine*, vol. 3 (Paris, 1875), 111, and later developed by A. Blanchet, "Les rapports entre les dépôts monétaires et les événements militaires, politiques et économiques," *RN* 39 (1936): 1–70 and 205–69; The first to have applied this idea to early Byzantine hoards from the Balkans was V. Laurent, "Bulletin de numismatique byzantine (1940–1949)," *REB* 9 (1951): 221. For later interpretations see D. M. Metcalf, "The Aegean Coastlands under Threat: Some Coins and Coin Hoards from the Reign of Heraclius," *BSA* 57 (1962): 14–23; I. Iurukova, "Les invasions slaves au sud du Danube d'après les trésors monétaires en Bulgarie," *Byzantinobulgarica* 3 (1969): 255–63; V. Popović, "Les témoins archéologiques des invasions avaro-slaves dans l'Illyricum byzantin," *MélRome* 87 (1975): 445–504; V. Popović, "La descente des Koutrigours, des Slaves et des Avars vers la Mer Egée: Le témoignage de l'archéologie," *Comptes Rendus de l'Académie des Inscriptions et Belles Lettres* 6 (1978): 597–649; V. Ivanišević, "Les trésors balkaniques, témoins des invasions et de leurs routes," in *Les trésors monétaires byzantins des Balkans et d'Asie Mineure* (491–713), ed. C. Morrisson, V. Popović, and V. Ivanišević (Paris, 2006), 75–85. Henceforth *Les trésors monétaires byzantins* is referred to as *TMB*.

5 V. Popović, "Une invasion slave sous Justin II inconnue des sources écrites," *Numizmatičar* 4 (1981): 111–26.

6 R. Reece, *Coinage in Roman Britain* (London, 1987), 48–49; R. Reece, *The Later Roman Empire: An Archaeology AD 150–600* (Stroud, 1999), 140–41. For the Balkans, see D. M. Metcalf, "Avar and Slav Invasions into the Balkan Peninsula (c. 575–625): The Nature of the Numismatic Evidence," *Journal of Roman Archaeology* 4 (1991): 140–48.

7 G. Hatz, *Handel und Verkehr zwischen dem Deutschen Reich und Schweden in der späten Wikingerzeit: Die deutschen Münzen des 10. und 11. Jahrhunderts* (Lund, 1974), 145–47; R. Kiersnowski, "Coin Finds and the Problem of Money Hoarding in Early Medieval Poland," *Wiadomości numizmatyczne* 5 (1960): 35–56, esp. 50–53; R. Kiersnowski, *Pieniądz kruszcowy w Polsce wczesnośredniowiecznej* (Warsaw, 1960), 472–5; P. Sarvas, "De finska myntskatterna från

Only a small group of scholars have insisted upon the ritual character of the burial of hoards, for example, in churches or next to their outside walls.⁸

A number of observations on the hoarding behavior of the Roman age point to the fact that hoards buried by civilians or soldiers in secured regions of the Empire, those buried by people living there in family or household groupings in insecure regions on the frontier, and hoards accumulated by way of trade had a greater chance of being retrieved than any other kind of hoards.⁹ Others have argued that instead of political and military crisis in the territories in which they were found, coin hoards of both the Roman and the modern age reflect the recruiting grounds of the competing armies or the fact that soldiers concealed their money at home when leaving for campaigns elsewhere.¹⁰

Several scholars have advanced the idea of classifying hoards on the basis of criteria pertaining to the circumstances of their concealment.¹¹ A hoard deposited

1700–talet," *Nordisk Numismatisk Årsskrift* (1967): 23–146, and (1969): 116–72; A. Mikołajczyk, "Nowożytnie skarby monet jako źródło historyczne: Wybrane zagadnienia," *Wiadomości numizmatyczne* 27 (1983): 1–11; S. Suchodolski, "Aus welchen Gründen hat man in der Wikingerzeit im Ostseeraum Münzschatze deponiert?" in *Fundamenta Historiae: Geschichte im Spiegel der Numismatik und ihrer Nachbarwissenschaften: Festschrift für Niklot Klüssendorf zum 60. Geburtstag am 10. Februar 2004*, ed. R. Cunz et al. (Neustadt an der Aisch, 2004), 107–16, esp. 109.

8 J. Kowalewski, "Okoloczności deponowania wczesnośredniowiecznych skarbów srebrnych na obszarze Słowiańszczyzny zachodniej: Próba reinterpretacji znaczenia," *Acta Universitatis Nicolai Copernici—Archeologia* 28 (2001): 59–97; S. Suchodolski, "Coin Hoards Discovered in Churches: A Symptom of Cult or Economy?" in *Studia numismatica: Festschrift Arkadi Molvögin* 65, ed. I. Leimus (Tallinn, 1995), 172–77. For magical practices accompanying the burial of hoards, see N. A. Makarov, "Magicheskie obriadi pri sokrytii klada na Rusi," *SovArkh* 4 (1981): 261–64.

9 R. Duncan-Jones, *Money and Government in the Roman Empire* (Cambridge, 1994), 83. Duncan-Jones's argument is based on the evidence of papyri from Egypt indicating that populations in densely settled areas left relatively few hoards, most likely because wherever there was family or communal knowledge of the place of hiding, people were unlikely to lose track of hidden valuables.

10 P. J. Casey, *Understanding Ancient Coins: An Introduction for Archaeologists and Historians* (London, 1986), 61; Duncan-Jones, *Money*, 83.

11 Besides savings and emergency hoards, several scholars have advanced other possible categories, such as "accidental losses," deliberately abandoned hoards often with ritual meaning (e.g., collections of coins found in graves, fountains, or walls), and "purse hoards." See P. Grierson, *Numismatics* (Oxford, 1975), 130–36. From a purely

on an impulse and consisting of coins which are readily at hand at the time of the burial is an “emergency hoard” (also called “currency hoard” or “circulation hoard”). The assumption in this case is that such an assemblage is typically random, sometimes with the addition of objects of precious metal or of jewelry. Ideally such a hoard would represent a snapshot of the coins in circulation at the time of the burial.¹² By contrast, a “savings hoard” (or “bullion hoard”) may have been accumulated over a long period of time and added to at intervals.¹³ Such a hoard typically includes premium coins—large denominations, of higher purity of metal content, and with little or no circulation wear. Although in theory the distinction between emergency and savings hoards appears clear-cut, in reality it is often difficult to classify hoards into any one of those two categories.¹⁴ The distinction is particularly difficult in the case of hoards of copper, for which many of the above-mentioned criteria are irrelevant. Given the long circulation life of early Byzantine copper coins and the presence in several hoards of earlier Late Roman, Roman, and

even Hellenistic specimens, it appears that a distinction based on the chronological span covered by a coin assemblage can rarely be of any assistance in hoard characterization.¹⁵ Nor can the purity of the metal be of any use in such cases, while the degree of wear is hardly a useful basis for drawing distinctions. Despite the relative scarcity of historical sources concerning contemporary prices, the accumulation of a few dozen solidi was without any doubt a treasure in its own right, in other words, arguably a savings hoard. However, with base metal coins it is not easy to decide what could ultimately pass for valuable and worth saving by the average owner—a soldier, a peasant, or a poor city dweller.

A cursory comparison of sixth- to seventh-century hoards found in the Balkans and the Near East reveals two important differences. Most hoards in the Balkans have fewer than one hundred coins, while the average hoard from Syria-Palestine contains a few hundred coins. Hoards in the Near East often have a chronological gap corresponding to the dated issues of Justinian I (528–565), which makes it even harder to establish a clear difference between “emergency” and “savings,” since it is precisely the heavier, high-value coins that are absent from such hoards. To be sure, in both cases (the Balkans and the Near East), a comparison with site finds, where available, can shed much light on how coins were selected for hoarding. Unlike the Balkans, excavations in the Near East have produced a large number of small denominations, which are rarely found in hoards from that region. The absence of small denominations does not exclude a hoard found in Palestine from the list of emergency hoards. However, that small denominations rarely made their way into hoards from the Near East serves as a cautionary tale against treating “circulation hoards” as assemblages put together in a purely random fashion, with no selection whatsoever.

For it is selection that is in fact at stake. If coins were withdrawn from circulation on the basis of distinct criteria, and if, before being buried, every hoard was a collection of valuables in a specific relation to other valuables still in circulation, then the point of studying hoards should be the identification of collection patterns, which in turn could lead us to some understanding of the reasons for which coins were collected in the first place. Nonetheless, most approaches to coin hoards have so far been concerned with representing, not

theoretical point of view, accidental hoards are perhaps the closest one can get to a true snapshot of the circulating medium at a given place and date. In reality, such hoards are hard to find, primarily because to treat them as “accidental” one needs detailed information about the archaeological context in which they were found. See A. Gândilă, “Un tezaur de monede bizantine timpurii descoperit la Capidava,” *Cercetări Numismatice* 15 (2009): 87–105.

12 Grierson, *Numismatics*, 131; Casey, *Understanding*, 56.

13 J. P. C. Kent, “Interpreting Coin-Finds,” in *Coins and the Archaeologist*, ed. J. Casey and R. Reece (Oxford, 1974), 184–217 and esp. 206, cites Samuel Pepys’s story for an example of a “saving hoard” accumulated over a relatively short period of time. For a summary of the events leading to the burial and (partial) retrieval of Samuel Pepys’s hoard in 1667, see Casey, *Understanding*, 53–54. A late antique example of a savings hoard is Theodore the Anchorite collecting copper coins in order to purchase a copy of the New Testament, worth “three pieces of gold”: John Moschus, *Spiritual Meadow* 134, trans. J. Wortley (Kalamazoo, 1992), 110–11. The archaeological equivalent of such a situation is the collection of gold and copper coins found in a secret chamber of the synagogue of Meroth (Palestine), most probably a treasure accumulated through local donations. See A. Kindler, “The Synagogue Treasure of Meroth, Eastern Upper Galilee, Israel,” in *Proceedings of the 10th International Congress of Numismatics, London, September 1986*, ed. I. A. Carradice (Wetteren, 1989), 315–20.

14 Reece, *Coinage* (n. 6 above), 61; M. Waner and Z. Safrai, “A Catalogue of Coin Hoards and the Shelf Life of Coins in Palestine Hoards during the Roman and Byzantine Periods,” *Liber Annuus* 51 (2001): 305–25; R. Abdy, *Romano-British Coin-Hoards* (Princes Risborough, 2002), 10–11.

15 Waner and Safrai, “Catalogue of Coin Hoards,” 305–36.

analyzing, the complex structure of the studied assemblages.¹⁶ Numismatic data are often presented in tabular form and the interpretation depends to a large degree on the succession of columns and rows in the table. The order of succession tends to be chronological, but several other criteria—all of which are given separate attention by various scholars—are not readily apparent in the organization of such tables. The idea behind that organization is invariably to reduce the complexity of the data to some kind of order, so that it would be possible to identify patterns. As a consequence, the emphasis in most numismatic studies concerned with hoards has been on presenting frequency distributions in graphs summarizing the number of coins per year.¹⁷ The approach has therefore been typically limited to the co-variation of no more than two variables, mostly the number of coins and the (regnal) years. There has been little, if any concern with how relations could be investigated between more than two variables (e.g., denominations, mints, and regnal years) in a coherent fashion and within a single framework, so that one could assess which relations are more important than others. In other words, the approach has been seriously limited by the inability to make use of matrix algebra. Indeed, no techniques of numerical classification have so far been employed to find out clusters of hoards of particular types at particular times, the relation between such clusters and either specific regions in which the hoards were found, or the find circumstances. Nor has any attempt so far been made to carry out a cluster analysis

of the coins, coded in terms of the hoards in which they were found, in order to identify specific associations of coins appearing in more than one hoard. Only sparingly have multivariate methods been used for hoard analysis, in order to pull out something in common from a number of different variables characterizing a certain number of hoards.¹⁸ This is rather surprising, given the widespread use of multivariate analysis for hoards of dress accessories, tools, or weapons, perhaps one of the best illustrations of the applicability of advanced statistical methods for the study of archaeological assemblages.¹⁹ Particularly suitable for the kind of questions numismatists often ask about hoards and hoarding behavior is correspondence analysis, a technique allowing the concomitant study of relations between hoards, of relations between constituent coins, and of relations between hoards and constituent coins. Are there any regional patterns of hoarding behavior most typical for certain periods, but not for others? Were certain coins withdrawn together from circulation and, more importantly, are coins from widely different periods consistently found in association in several hoards? Is there any correlation between the regional distribution of coins and the number of specimens struck in specific mints during specific periods?

The main goal of this study is to offer plausible answers to these and several other questions pertaining to hoarding behavior in the Balkans during the sixth and the early seventh centuries. Our purpose is

16 For tactics employed by archaeologists to analyze complex data structures and the accompanying statistical techniques used for that analysis, see C. Carr, "Getting into Data: Philosophy and Tactics for the Analysis of Complex Data Structure," in *For Concordance in Archaeological Analysis: Bridging Data Structure, Quantitative Technique, and Theory*, ed. C. Carr (Kansas City, 1985), 18–44; F. Djindjian, "Ordering and Structuring in Archaeology," in *Mathematics and Information Science in Archaeology: A Flexible Framework*, ed. A. Voorrips (Bonn, 1990), 79–92.

17 There are numerous examples of this type of data representation, but for the purpose of this article it may be useful to illustrate the point with the frequency distribution graphs published in C. Morrisson and V. Ivanišević, "Les émissions des VI^e–VII^e siècles et leur circulation dans les Balkans," in *TMB* (n. 4 above), 46 fig. 2a–b, 50 fig. 4, 54 fig. 6, 55 fig. 7, and 56 fig. 8. The same is true for the attempt to represent frequency distributions for more than one hoard on the same graph (for the sake of comparison), so evident in F. Curta, "Invasion or Inflation? Sixth- to Seventh-Century Byzantine Coin Hoards in Eastern and Southeastern Europe," *Annali dell'Istituto Italiano di Numismatica* 43 (1996): 181–202.

18 A notable exception is N. S. Ryan, *Fourth-Century Coin Finds in Roman Britain: A Computer Analysis* (Oxford, 1988), a book which used principal component analysis for fourth-century coin hoards from Britannia. See also K. Lockyear, *Patterns and Processes in Late Roman Republican Coin Hoards, 157–2 BC* (Oxford, 2007), who employed correspondence analysis.

19 E. Bølviken, E. Ricka Hølskog, K. Hølskog, I. Marie Holm-Olsen, L. Solheim, and R. Bertelsen, "Correspondence Analysis: An Alternative to Principal Components," *World Archaeology* 14 (1982): 41–60; T. Madsen, "Seriation and Multivariate Statistics," in *Computer Applications and Quantitative Methods in Archaeology 1989*, ed. S. Rahtz and J. Richards (Oxford, 1989), 205–14; S. Shennan, *Quantifying Archaeology* (Edinburgh, 1990), 283–86; A. Zimmermann, "Zur Anwendung der Korrespondenzanalyse in der Archäologie," in *Archäologie und Korrespondenzanalyse: Beispiele, Fragen, Perspektiven*, ed. J. Müller and A. Zimmermann (Espelkamp, 1997), 9–15. For an exemplary application to hoards, see K. Høilund Nielsen, "Correspondence Analysis applied to Hoards and Graves of the Germanic Iron Age," in *Multivariate Archaeology: Numerical Approaches to Scandinavian Archaeology*, ed. T. Madsen (Aarhus, 1988), 37–54.

to find an explanation not for the burial of the analyzed hoards, but for the collection of coins. As a consequence, our analysis will focus primarily on hoards of copper, for which precise minting dates are known. The selection of coins for hoarding was linked to economic considerations and should theoretically reflect the monetary economy in existence at a given place and at a given time.²⁰ However, hoarding in the early Byzantine period is still poorly understood, and before any conclusions about coin circulation are drawn on the basis of hoards, the latter should be studied on their own, as independent social and economic phenomena.

Hoards in the Balkans: General Considerations

No fewer than 346 coin hoards dated between 491 and 695 are so far known from the entire area of East Central, Southeastern, and Eastern Europe, from Bohemia to the Ural Mountains, and from the Baltic to the Aegean Sea (see appendix 1).²¹ Over 75 percent of those hoards have been found in the Balkans, south of the river Danube, with the largest numbers in Bulgaria and Greece (99 and 85 hoards, respectively). Only one hoard is known from Albania so far, but given the relatively well documented presence of hoards in neighboring Macedonia (34) and Serbia (31),

this may simply reflect the current state of research. More than a quarter (27 percent) of all recorded hoards consist of gold coins, with or without accompanying jewelry (see below). Of those, a third were found outside the Balkan provinces of the Roman Empire, as far north as Germany (Biesenbrow) and as far northeast as Russia (Orsk). Eight out of ten hoards of silver have also been found outside the Balkans. Leaving aside a few hoards combining copper and gold or silver and gold, the vast majority of hoards found in the Balkans are of copper.

Most hoards are accidental finds, for which no information exists about the archaeological context or the circumstances of the find. The archaeological context is known for less than eighteen percent of all hoards found in eastern and southeastern Europe. Sometimes, hoards appear in much earlier contexts. The Athens 1908 hoard was hidden in an ossuary, while the Pellene 1982 hoard was found in the *dromos* of a Mycenaean burial chamber.²² Five hoards are known from ruins of ancient amphitheaters or from houses built within such ruins.²³ Six others were concealed in Roman baths, which had already been abandoned at the time of the concealment.²⁴ Two hoards from Greece have been found in urban features interpreted as “shops.”²⁵ Many more hoards were buried in the

20 B. Callegher, “La circulation monétaire à Patras et dans les sites ruraux environnants (VI^e–VII^e siècle),” in *Les villages dans l’empire byzantin, IV^e–XI^e siècles*, ed. J. Lefort, C. Morrisson, and J.-P. Sodini (Paris, 2005), 232, who notes that the gradual reduction of the weight (and value) of the sixth-century follis led to the hoarding of older and heavier specimens which often appear in hoards together with minimi.

21 Missing from appendix 1 are two hoards, about which we learned only after finalizing this paper: unknown location in Dobrudja (4 gold coins struck for Justinian, the latest between 542 and 565; see G. Custurea, “Un depozit de monede bizantine din Dobrogea,” *Pontica* 40 [2007]: 625–28); and Peshtera (14 gold coins struck for Justin I, Justinian, Justin II, and Tiberius II, the latest between 579 and 582; see B. Bozhkova and B. Petrunova, “Rannovizantiisko zlatno monetno sükrovishte ot krepostta ‘Sv. Petka’ pri grad Peshtera,” *Numizmatika, sfragistika i epigrafika* 4 [2008]: 57–63). Moreover, two upcoming publications deal with new hoards. A. Tenchova, “Monetna tsirkulatsiia prez VI–VII vek v zemite na dнешna Iugoiztochna Bülgariia,” Ph.D. dissertation, National Institute of Archaeology and Museum Sofia (Sofia, 2011) publishes a few dozen hoards from Thrace and Haemimons. M. Hadji-Maneva, “Early Byzantine Coin Circulation in Macedonia Secunda,” *Cercetări numismatice* 15 (2009): 107–32, includes the detailed publication of 15 new hoards.

22 *TMB* 225 and 267.

23 Thasos: O. Picard, “Trésors et circulation monétaire à Thasos du IV^e au VII^e siècle après J.-C.,” in *Thasiaca* (Athens, 1979), 450–53. Bitola: T. Janakievski, “Naodi na vizantiski moneti vo gradbite 5a i 5b od docnoantichkata mikrostanbena celina brz rimskiot teatar vo Heraclea Lyncestis,” *Macedoniae Acta Archaeologica* 4 (1978): 189–98. The Nemea hoard was found in the Stadium tunnel, while the Patras 1938 hoard was hidden in the Roman Odeon. See *TMB* 259 and 264.

24 Corinth: J. A. Dengate, “Coin Hoards from the Gymnasium Area at Corinth,” *Hesperia* 50 (1981): 175–78; *TMB* 231–32 and 236–37. Histria: C. Preda and H. Nubar, *Histria*, vol. 3, *Descoperirile monetare 1914–1970* (Bucharest, 1973), 229–31; A. Suceveanu and G. Poenaru-Bordea, *Histria*, vol. 6, *Les thermes romains* (Bucharest, 1982), 155 and 157–58. The Caričin Grad 1975 hoard was found in a house near the southern wall of the extramural bath. See V. Popović, “Petits trésors et trésors démembrés de monnaie de bronze protobyzantines de Serbie,” *Numizmatičar* 7 (1984): 66–67.

25 Athens (mill house): D. M. Metcalf, “The Slavonic Threat to Greece circa 580: Some Evidence from Athens,” *Hesperia* 31 (1962): 138. See also A. W. Parsons, “A Roman Water-mill in the Athenian Agora,” *Hesperia* 5 (1936): 70–90. Corinth (shop to the southwest from the Agora): H. L. Adelson and G. Kustas, “A Sixth Century

proximity of city or fort walls,²⁶ by gates²⁷ or inside towers.²⁸ In several cases, hoards were found within rooms of buildings serving the garrisons of forts.²⁹ All examples of hoards found in basilicas are from the northern and central Balkans, with three examples from basilical atria in Caričin Grad.³⁰ To judge from the existing evidence, a contrast exists between the southern regions of the Balkans, on one hand, and the central and northern regions, on the other hand. In the former, hoards were often concealed in amphitheaters, "shops," baths, or even ancient tombs, but never in basilicas, while in the northern and central

Balkans, hoards are mostly found by fort walls and in basilicas.³¹

Less than sixteen percent (54 assemblages) of all published hoards have been found in some kind of container. Given the inaccurate or incomplete publication of many assemblages, as well as the circumstances in which they were found (often during plowing, which can destroy fragile containers), the number of hoards with containers may well be higher. It is also possible that some hoards were deposited in perishable containers, such as leather or textile purses, which rarely leave any traces in the archaeological record. Only three such examples are so far known from the Balkans, but several others are known from Anatolia and the Near East.³² In the Balkans, most hoards with containers have been found within the early Byzantine provinces of Thrace (ten hoards), Achaia (six hoards), and Macedonia and Dacia Ripensis (five hoards for each), with fewer examples from Scythia Minor (only three) and Haemimons, Dacia Mediterranea, and Dardania (each with one hoard). Because of the small number of hoards with containers known so far, it is not at all clear whether containers were more frequent in some periods, but not in others. Nonetheless, none of the hoards with the latest coins struck for Emperor Justinian and

Hoard of Minimi from the Western Peloponnese," *ANSMN* 11 (1964): 163.

26 Bosman: V. Kondić, "Le trésor de monnaies de bronze de la forteresse protobyzantine de Bosman," *Numizmatičar* 7 (1984): 51–54. Brza Palanka: A. Jovanović, "Un petit trésor de monnaies de bronze de la forteresse protobyzantine près de Slatinska Reka," *Numizmatičar* 7 (1984): 31–35. Il'ich: N. A. Frolova and E. Ia. Nikolaeva, "Il'ichevskii klad monet 1975 g.," *VizVrem* 39 (1978): 173–79. Osenovo: *TMB* 150.

27 Pernik: *TMB* 303. Thasos: Picard, "Trésors et circulation monétaire" (n. 23 above), 430–32.

28 Adamclisi: I. Bogdan-Cătănciu and G. Poenaru-Bordea, "Un mic tezaur de monede bizantine descoperit la Tropaeum Traiani," *Buletinul Societății Numismatice Române* 90–91 (1996–97): 85–95. Khürlets: *TMB* 311.

29 Gamzigrad (in a room of the building between the temple, the apsed building, and a portico): Đ. Janković, "Le trésor de minimi de Gamzigrad," *Numizmatičar* 7 (1984): 7–11. Hinog (in a room by the northern gate): G. Poenaru-Bordea and R. Ocheșeanu, "Tezaurul de monede bizantine de aur descoperit în săpăturile arheologice din anul 1899 de la Axiopolis," *Buletinul Societății Numismatice Române* 77–79, nos. 131–33 (1983–85): 177–97. Ohrid (inside a building within the fortification): *TMB* 291–92. Sadovets (in houses of the Golemanovo kale and Sadovsko kale forts): *TMB* 322, 324, 325, and 326. Cape Shabla (in a building next to the fort wall): S. Torbatov, "Rannovizantiisko monetno sŭkrovishte ot kastela Carea/Creas (provintsiia Skitiia)," *Numizmatika i sfragistika* (Sofia) 9 (2002–2003): 21. The sites on which Majdan and Slava Rusă hoards have been found are believed to be early Byzantine monasteries: I. Mirnik, "Ostava bizantskog novca s Majdana," *Numizmatičar* 5 (1982): 141–46; A. Opař, C. Opař, and T. Bănică, "Der frühchristliche Komplex von Slava Rusă," in *Die Schwarzmeerküste in der Spätantike und im frühen Mittelalter*, ed. R. Pillinger, A. Pülz, and H. Vettters (Vienna, 1992), 113–22, esp. 117.

30 Agia Kyriaki: *TMB* 268–69. Caričin Grad: Popović, "Petits trésors" (n. 24 above), 61–63 (atrium of the basilica E), 63–64 (near the northern wall of the atrium of the transept basilica), 68–69 (near the atrium of the transept basilica); Garmen: *TMB* 301. Silistra: *TMB* 155. Sofia: B. Bochkova, "Sŭkrovishte ot ranovizantiiski monetni ot Sofia," *Numizmatika i sfragistika* (Sofia) 7 (2000): 18–37. Varna: *TMB* 156–57.

31 The habit of concealing coin hoards in basilicas in the northern Balkans is strikingly reminiscent of the "synagogue hoards" of Palestine. See Waner and Safrai, "Catalogue of Coin Hoards" (n. 14 above), 308.

32 The Balkan examples are from Capidava, for which see Gândilă, "Un tezaur de monede bizantine" (n. 11 above); Byllis, for which see S. Muçaj, "Aperçu des données archéologiques dans le territoire albanais (IVe–VIIe siècles)," *Mélanges de l'École Française de Rome, Moyen Âge* 120, no. 2 (2009): 382, and Stobi, for which see Hadji-Maneva, "Early Byzantine Coin Circulation" (n. 21 above). Other hoards wrapped in pieces of cloth or textile purses are known from Anemurium, Berytus, En Gedi, Ma'oz Haim, Jerusalem, and Horvat Rimmon (Israel). See J. Russell, "A Coin Hoard of Maurice Tiberius from Anemurium, Isauria," *ANSMN* 28 (1983): 119–31; K. Butcher, "Archaeology of the Beirut Souks 1. Small Change in Ancient Beirut: The Coin Finds from BEY 006 and BEY 045: Iron Age, Hellenistic, Roman and Byzantine Periods," *Berytus* 45–46 (2001–2002): 291; G. Bijovsky, "The Coins," in *En-Gedi Excavations*, vol. 2, Final Report (1996–2002), ed. Y. Hirschfeld (Jerusalem, 2007), 162; G. Bijovsky, "Monetary Circulation in Palestine during the Byzantine Period (Fifth–Seventh Centuries CE)," Ph.D. dissertation, Hebrew University (Jerusalem, 2011), n. 48; G. Bijovsky, "A Single Die Solidi Hoard of Heraclius from Jerusalem," in *Mélanges Cécile Morrisson*, ed. J.-C. Cheynet (Paris, 2010), 56; A. Kloner and T. Mindel, "Two Byzantine Hoards from the Ancient Synagogue of Horvat Rimmon," *Israel Numismatic Journal* 5 (1981): 60.

found in the former province of Macedonia in ceramic containers seems to have been buried after 550. Most hoards with containers from Dacia Ripensis were put away only twenty-five years later. Interestingly, this is also true for hoards with containers found north of the Danube frontier of the Empire, all of which were concealed after 570.

The number of hoards with containers is much larger in the Near East and in Africa than in the Balkans. This may well be because hoards in those regions are considerably larger (with a larger number of coins) than those found in the Balkans. This is of course a matter not just of how easy or difficult it can be to transport the coins to the place of concealment, but also one of monetary (intrinsic) value of the hoard. Out of 54 hoards from southeastern and eastern Europe found in containers, more than a third are of gold or silver. The significance of this apparently small number of hoards is greatly increased when considering that the vast majority of hoards found in the Balkans are of copper.

Of all containers about which sufficient information has been published, almost 85 percent are ceramic. Most hoards found in ceramic containers are of copper, although several cases are known of hoards of gold and silver with such containers.³³ Sometimes, hoards were deposited in multiple containers. No fewer than

22,252 coins were found in 1877 in Olympia in several containers, two of which were wheel-made pitchers of relatively small size (fifteen centimeters high).³⁴ The choice of such handled vessels otherwise used for the transportation and pouring of liquids may indicate that the concern of the hoard's owner was to have the coins in a container with a constricted aperture, in order to avoid spilling the contents during transportation or handling. A preference for handled containers is also visible for hoards found in the Near East, many of which were deposited in vessels described as jugs³⁵ or pitchers.³⁶ Such a preference is also clear in the case of a hoard of seventh-century hexagrams found in Priseaca (southern Romania). The 141 coins have

și bizantine (sec. IV–XI) descoperite pe teritoriul județului Argeș,” *Studii și cercetări de numismatică* 9 (1989): 79. Sadovets: *TMB* 324.

34 T. Völling, “Ein frühbyzantinischer Hortfund aus Olympia,” *MDAI* 110 (1995): 425–41 and 429 fig. 4 (for one of the pitchers). According to Oikonomidou, Touratsoglou, and Krikou Galani, in *TMB* 236, the 387 copper coins (minimi) found in 1937 in the southern portico of the Roman Bath in Corinth were deposited in a vessel with an even more restricted aperture, namely an *unguentarium*.

35 Coelesyria: G. E. Bates, “A Byzantine Hoard from Coelesyria,” *ANSMN* 14 (1968): 67–111. Khirbet Deir Dassawi: L. Y. Rachmani, “Two Hoards of Byzantine Coins and a Roman Charm from Khirbet Deir Dassawi,” *Israel Numismatic Journal* 2, nos. 1–2 (1964): 19–23. Nikertai: C. Morrisson, “Le trésor byzantin de Nikertai,” *RBN* 118 (1972): 29–91. Sarafand: G. Taylor, “A Hoard of Small Module Coins of Anastasius,” *Coin Hoards* 3 (1977): 87. Ain Kelba: C. Morrisson, “La trouvaille d’Ain Kelba et la circulation des *minimi* en Afrique au début du VI^e siècle,” in *Mélanges de numismatique, d’archéologie et d’histoire offerts à Jean Lafaurie*, ed. P. Bastien et al. (Paris, 1980), 239–48. Unlike the Balkans, in the Near East and in Africa hoards have occasionally been deposited in amphorae. See G. Abou Diwan, “Un trésor monétaire de Beyrouth: A propos de la circulation des monnaies d’Anastase au VI^e siècle,” *NC* 168 (2008): 303–20 with fig. 2; S. Deloum, “Notes sur le trésor monétaire de M’ Sila (fin du V^e siècle–début du VI^e siècle après J.-C.),” in Carradice, *Proceedings* (n. 13 above), 305–13. Deir ‘Aziz: N. Ahipaz, “A Hoard of Byzantine *Solidi* from the Deir ‘Aziz Synagogue,” *Israel Numismatic Research* 2 (2007): 157–65. There are also examples of hoards concealed in ceramic lamps: A. Dajani, “A Hoard of Byzantine Coins from Awarta,” *AAJord* 1 (1951): 41–45; D. Syon, “A Hoard of Byzantine *Solidi* from Hurvat Kab,” *Israel Numismatic Journal* 14 (2000–2002): 211–24. Another was found together with fragments of a glass container: W. E. Metcalf, “The Coins—1978,” in *Excavations at Carthage 1978 Conducted by the University of Michigan*, ed. J. H. Humphrey (Ann Arbor, 1982), 65.

36 Horvat Rimmon: Kloner and Mindel, “Two Byzantine Hoards” (n. 32 above). The collection of small change in ceramic containers is also mentioned in the sources, e.g., *Apophthegmata patrum* 6.25, ed. J.-C. Guy (Paris, 1993), 330.

33 Adamclisi (gold and copper): R. Ocheșeanu, “Tezaurul de monede bizantine descoperit la Tropaeum Traiani în campania arheologică din anul 1908,” *Studii și cercetări de numismatică* 11 (1995): 163–82. Dragoinovo (gold and copper): T. Gerasimov, “Kolektivni nakhodka na moneti,” *IzvArhInst* 17 (1950): 324. Eleusis (gold): *TMB* 245. Galați (silver): *TMB* 168. Grnčare (gold and copper): V. Radić, “Ostava ranovizantijskog novca iz sela Grnčar kod Gnjilana,” *Numizmatičar* 14 (1991): 49–56. Iambol (gold): N. Tancheva-Vasileva, “Dve zlatni monetni sükrovishta ot Kabile,” in *Kabile*, ed. V. Velkov (Sofia, 1991), 83–90. Il’ich (gold): Frolova and Nikolaeva, “Il’ichevskii klad” (n. 26 above). Novo Selo (gold and copper): J. Kondijanov, “The Early Byzantine Hoard from Novo Selo, near Strumica,” *Macedonian Numismatic Journal* 2 (1996): 95–104. Pŭrvomai (gold): T. Gerasimov, “Monetni sükrovishta, namereni v Bŭlgariia prez 1958 i 1959 g.,” *IzvArhInst* 25 (1962): 227. Patras (gold): A. G. Moutzali, “Η πόλη των Πατρών κατά τον 6ο και 7ο αιώνα: Η μυθολογία της εγκατάλειψης,” in *Πρωτοβυζαντινή Μεσσηνή και Ολυμπία: Αστικός και αγροτικός χώρος στη Δυτική Πελοπόννησο: Πρακτικά του Διεθνούς Συμποσίου, Αθήνα, 20–30 Μαΐου 1998*, ed. P. G. Themelis and V. Konti (Athens, 2002), 183. Priseaca (silver): B. Mitrea, “Date noi cu privire la secolul VII: Tezaurul de hexagrame bizantine de la Priseaca (jud. Olt),” *Studii și cercetări de numismatică* 6 (1975): 113–25. Proviadiia (gold): *TMB* 151–52. Râncăciova (silver and copper): G. Poenaru-Bordea and P. I. Dicu, “Monede romane tirzii

been deposited, together with two silver earrings, in a handled pot made on a slow-turning wheel (*tournette*) in a fabric tempered with sand and pebbles.³⁷ Such pots have not been found in contemporary ceramic assemblages north of the Danube River, but have good analogies with late sixth- and early seventh-century Byzantine fortified sites in the Balkans and in Crimea.³⁸ This strongly suggests that the collection of hexagrams in the Priseaca hoard was not formed in the lands north of the Danube River, but may have arrived in the region together with the handled container in which the coins were found.

Not all hoard owners deposited their collections of valuables in jugs or pitchers. The four gold coins in the Patras 1986 hoard were found in a small wheel-made vessel, the aperture of which was of the same size as the bottom. This was a small but open form, from which the coins could have easily been dropped.³⁹ The hoard found in 1938 in the Odeon of Patras was deposited in two ceramic pots with 5,744 and 6,023 coins respectively.⁴⁰ Unfortunately, none of them has been so far published and nothing is known about their shape, aperture, and size. Equally regrettable is the absence of any information about the “pots” in which a great

number of hoards were found inside⁴¹ or outside the Balkan provinces of the early Byzantine Empire.⁴² That at least in some of those cases, the pots in question may

37 Mitrea, “Date noi cu privire la secolul VII” (n. 33 above), plate I.

38 Such handled pots have been found in Svetinja (Serbia), Nova Cherna (Bulgaria), and Karasura (Bulgaria): M. Popović, “Svetinja, novi podaci o ranovizantijskom Viminacijumu,” *Starinar* 38 (1987): 20 fig. 16.2; A. Milchev and S. Angelova, “Razkopki i prouchvaniia v m. Kaleto krai s. Nova Cherna, Silistrenski okrüg, prez 1968 g.,” *Arkheologija* 12, no. 1 (1970): 29 and 28 fig. 3a; M. Wendel, “Die Gemarkung Kaleto des Dorfes Rupkite bei Čirpan (Bulgarien) im Mittelalter,” *Zeitschrift für Archäologie* 26 (1992): 288 fig. 7.2, 4, 5. For Crimean specimens, see E. V. Veimarn and A. I. Aibabin, *Skalistinskii mogil’nik* (Kiev, 1993), 19 fig. 9.4, 5 and 51 fig. 31.18. Similar pots appear in ceramic assemblages of the Early Avar age (ca. 570 to ca. 630) in southern Hungary: T. Vida, *Die awarenzeitliche Keramik I. (6.–7. Jh.)* (Berlin and Budapest, 1999), 97–99.

39 Moutzali, “Η πόλη των Πατρών” (n. 33 above), 187 fig. 2. A specimen without any known parallel, the pot has at the level of its largest diameter a prominence, which looks like the beginning of a handle, perhaps to be attached to a wooden or bone tube.

40 A. Avramea, “Νομισματικοὶ «θησαυροὶ» καὶ μεμονωμένα νομίσματα ἀπὸ τὴν Πελοπόννησο (ΣΤ’–Ζ’ αἰ.),” *Σύμμεικτα* 5 (1983): 49–90, esp. 61. Oikonomidou, Touratsoglou, and Krikou Galani, in *TMB* 264 note that the number of coins in the two pots (11,767) is lower than the total number of coins reported for the Patras 1938 hoard (11,984).

41 Adamclisi: Ocheșeanu, “Tezaurul de monede bizantine” (n. 33 above). Bŭlgarevo: Gerasimov, “Monetni sŭkrovishta” (n. 33 above), 229. Borec: T. Gerasimov, “Kolektivni nakhodki na moneti prez 1934, 1935 i 1936 god,” *Izvestiia na Bŭlgarskiiia arkheologicheski institut* 11 (1937): 318. Brza Palanka: Jovanović, “Un petit trésor” (n. 26 above). Constanța-Anadolchioi: B. Mitrea, “Un tezaur de monede bizantine descoperit la Constanța,” *Pontica* 16 (1983): 239–62. Caričin Grad: Popović, “Petits trésors” (n. 24 above), 68–69. Dolno Sakhrane: *TMB* 128. Dragoinovo: Gerasimov, “Kolektivni nakhodki” (n. 33 above). Eleusis: *TMB* 245. Gara Dolen: Gerasimov, “Kolektivni nakhodki na moneti prez 1934, 1935 i 1936 god,” 319. Gorno Vassilitsa: T. Gerasimov, “Trésors monétaires trouvés en Bulgarie au cours de 1968, 1969 et 1970,” in *Culture et art en Bulgarie médiévale (VIII^e–XIV^e s.)*, ed. D. Angelov et al. (Sofia, 1979), 134. Godiachevo: *TMB* 186. Grnčare: Radić, “Ostava ranovizantijskog novca” (n. 33 above). Iambol: Tancheva-Vasileva, “Dve zlatni monetni sŭkrovishta” (n. 33 above); *TMB* 131. Katuntsi: *TMB* 190. Megara: *TMB* 257. Nesebŭr: V. Penchev, “Kolektivna nakhodka ot medni vizantiiski moneti ot vtorata polovina na VII v., namerena v Nesebŭr,” *Numizmatika* 25, nos. 3–4 (1991): 5–9. Nova Nadezhda: Gerasimov, “Kolektivni nakhodki na moneti prez 1934,” 322. Novo Makhala: *TMB* 33. Novo Selo: Kondijanov, “Early Byzantine Hoard” (n. 33 above). Osikovo: T. Gerasimov, “Kolektivni nakhodki na moneti prez poslednite godini,” *IzvArhInst* 15 (1946): 237. Pŭrvomai: Gerasimov, “Monetni sŭkrovishta” (n. 33 above). Pliska: T. Gerasimov, “Kolektivni nakhodki na moneti prez 1955 godina,” *IzvArhInst* 21 (1957): 325. Provadiia: *TMB* 151. Reselets: *TMB* 317. Sadovets: Iordanka Iurukova, “Trouvailles monétaires de Sadovetz,” in *Die spätantike Befestigungen von Sadovec: Ergebnisse der deutsch-bulgarisch-österreichischen Ausgrabungen 1934–1937*, ed. S. Uenze (Munich, 1992), 295–99; *TMB* 324. Sekulica: J. Kondijanov, “Dve ostavi so paleovizantiiski pari od s. Sekulica, Kratovsko,” *Macedoniae Acta Archaeologica* 11 (1987–89): 202–11. Suva Reka: Dobrila Gaj-Popović, “Trois trésors de monnaies de bronze protobyzantins du Musée National de Belgrade,” *Numizmatičar* 7 (1984): 18–21. Varna: *TMB* 156.

42 Bielsko: M. Wołoszyn, “Byzantinische Münzen aus dem 6.–7. Jh. in Polen,” in *Byzantine Coins in Central Europe Between the 5th and 10th Century: Proceedings from the Conference Organised by Polish Academy of Arts and Sciences and Institute of Archaeology University of Rzeszów under the Patronage of Union Académique Internationale (Programme No. 57 Maorvaia Magna)*, Kraków, 23–26 IV 2007, ed. M. Wołoszyn (Cracow, 2009), 498–99. Cudalbi: I. Dimian, “Cîteva descoperiri monetare pe teritoriul RPR,” *Studii și cercetări de numismatică* 1 (1957): 190–91. Galați: *TMB* 168. Gropeni: Dimian, “Cîteva descoperiri monetare,” 193–94. Il’ich: Frolova and Nikolaeva, “Il’ichevskii klad” (n. 26 above). Hlinsko: M. Kuna and N. Profantová, *Počátky raného středověku v Čechách: Archeologický výzkum sídelní aglomerace kultury pražského typu v Roztokách* (Prague, 2005), 284. Movileni: O. Iliescu, “Tezaurul de monede de bronz de la Movileni (jud. Galați),” *Creșterea colecțiilor BAR: Caiet selectiv de informare* 51 (1975): 20–31. Râncăciou: Poenaru-Bordea and Dicu, “Monede romane tirzii și bizantine” (n. 33 above).

have a large aperture results from the occasional mention of lids in the form of stone slabs, no doubt placed above the containers in order to prevent the spilling of the content.⁴³ By contrast, no lid is mentioned in the case of the Dolno Kabile hoard with its ten coins deposited in a ceramic bowl. The copper-alloy equivalent of that open vessel was found together with another ten coins in the Gjegjovë hoard.⁴⁴ The Gjegjovë bowl is unique, for no other Balkan hoard is known to have been found in such a container. As a matter of fact, with the exception of the Bŭrzovitsa hoard, found in a lead box, no other metal container is known for any of the many hoards found in the Balkan provinces of the early Byzantine Empire.⁴⁵ Such containers are more common outside those provinces. The Limarivka and Bartym hoards were found in Sassanian silver buckets, the only containers of precious metal known so far.⁴⁶ Closer to the frontiers of the Empire, the 58 copper coins of the Horgești hoard were deposited in a much more modest

container, namely a copper-alloy pitcher.⁴⁷ Almost identical pitchers were associated with late sixth-century coins in the Zogeria 1970 and Olympia hoards, but similar vessels are known from the early Byzantine hill fort of Pece (Albania) and from the Yassı Ada shipwreck.⁴⁸ Such analogies suggest that, like Priseaca, the collection of the Horgești hoard took place south of the Danube frontier of the early Byzantine Empire, in the lands where such pitchers were quite common.

Copper-alloy vessels appear also in the Khŭrlets and Olympia hoards.⁴⁹ No details are known about the copper-alloy vessels from Khŭrlets, but the kettle (of a type well represented in the metalwork found in Olympia) and the three trefoil-mouthed pitchers from Olympia have good analogies in Corinth, Pergamon, and Sardis.⁵⁰ That such vessels represented valuables results from the fact that the specimens from Corinth and Pergamon were also found in hoards. Much like the Pergamon hoard, the Khŭrlets and Olympia

43 Stone slabs are mentioned for the Cudalbi and Sekulica hoards: Dimian, "Cîteva descoperiri monetare" (n. 42 above), 190; Kondijanov, "Dve ostavi" (n. 41 above), 202. The best parallels to both cases may be found in Palestine. A hoard of gold coins found in the synagogue of Horvat Rimmon was deposited in a pitcher covered with a slab stone (Kloner and Mindel, "Two Byzantine Hoards" [n. 32 above], 60), while a hoard of 50 solidi from Hurvat Kab was found in a lamp stoppered with a potsherd, which had been trimmed to fit the opening (Syon, "Hoard" [n. 35 above], 211).

44 For Dolno Kabile, see T. Gerasimov, "Kolektivni nakhodki na moneti prez 1940 g.," *Izvestiia na Bŭlgarskiiia arheologicheski institut* 14 (1940–41): 282. For Gjegjovë, see H. Spahiu and N. Çuni, "Monedha antike e bizantine nga lugina e Sipërme e Osumit (Rrethi i Skraparit)," *Iliria* 18 (1988): 248 fig. 1.

45 For Bŭrzovitsa, see N. A. Mushmov, "Kolektivni nakhodki na monet prez 1925–1926 god.," *Izvestiia na Bŭlgarskiiia arheologicheski institut* 4 (1926–27): 323.

46 For Limarivka, see V. V. Kropotkin, *Klady vizantiiskikh monet na territorii SSSR* (Moscow, 1962), 35. For Bartym, see L. N. Kazamanova, "Bartymskii klad vizantiiskikh serebrianykh monet VII veka," *Numismaticheskii sbornik* 2 (1957): 70–76. For Sassanian silverware in Eastern Europe, see K. V. Trever and V. G. Lukonin, *Sasanidskoe serebro: Sobranie Gosudarstvennogo Ermitazha; Khudozhestvennaia kul'tura Irana III–VII vekov* (Moscow, 1987); S. A. Naumenko and S. I. Bezuglov, "Uj bizānci  s ir ni importleletek a Don-vid k sztepp ir l," *M ra Ferenc M zeum Evk nyve: Studia Archaeologica* 2 (1996): 247–57; Marlia Mundell Mango, "Byzantine, Sasanian and Central Asian Silver," in *Kontakte zwischen Iran, Byzanz und der Steppe im 6.–7. Jahrhundert*, ed. C. B lint (Budapest, 2000), 267–84.

47 V. C pitanu, "Tezaurul de monede bizantine descoperit la Horge ti, jud. Bac u," *Carpica* 4 (1971): 253–60 with fig. 1 for the pitcher.

48 Zogeria: *K d merin   w  sto B   ntio: O ssalonik , Leuk s P rgos, ok   rios 2001–ianou rios 2002*, ed. D. Papanikola-Bakirtzis (Athens, 2002), 148–49. Olympia: V lling, "Ein fr hbyzantinischer Hortfund" (n. 34 above), pl. 94.2, 3. Pece: L. P rzhita, "K shtjella e Pec s n  periudh n e antikitetit t  von  dhe mesjet  (rrethi i Kuk sit)," *Iliria* 20 (1990): 218–19 and 237 pl. 10.1, 2. Yassı Ada: S. Womer Katzev, "Miscellaneous Finds," in *Yassı Ada: A Seventh-Century Byzantine Shipwreck*, ed. G. F. Bass and F. H. van Doorninck (College Station, 1982), 269 and 270 fig. 12–2. Similar pitchers are also known from Corinth, Pergamon, Sardis, and the St. Martyrius monastery in Ma le Adummium (Syria). See S. Mustea , "Unele concretiz ri privind vasul de metal din tezaurul monetar de la Horge ti, jud. Bac u, Rom nia," in *Arheologia  ntre  tiin  , politic   i economia de pia  *, ed. S. Mustea  (Chi in u, 2010), 99–127.

49 S. Mashov, "K snoantichniat kastel i ranovizantiiskiiat grad Augusta pri selo Kh rlets, obshtina Kozlodui," *Izvestiia na Muzeite v Severozapadna B lgariia* 16 (1990): 41; V lling, "Ein fr hbyzantinischer Hortfund" (n. 34 above), pls. 93.1 and 94.1–4. A bronze goblet was found together with a large number of Roman and early Byzantine bronze coins at En Gedi (Bijovsky, "Coins" [n. 32 above], 162).

50 G. R. Davidson, *The Minor Objects*, vol. 12 of *Corinth* (Princeton, 1952), 73 with pl. 51.552–553 and 74 with pl. 52.559; W. Altmann, "Die Arbeiten zu Pergamon, 1902–1903: Die Einzelfunde," *MDAI* 29 (1904): 199 with fig. 31 and 200 with fig. 32; J. C. Waldbaum, *Metalwork from Sardis: The Finds through 1974* (Cambridge and London, 1983), 91 and 94 with pl. 35. For other finds of copper-alloy kettles from Olympia, see V lling, "Ein fr hbyzantinischer Hortfund" (n. 34 above), 443 with n. 41.

assemblages also included agricultural tools. The two iron spades found in the Olympia hoard were most suitable for work in viticulture, arboriculture, and horticulture. Besides coins struck for Justinian and Justin II, that hoard produced twelve harvesting (five billknives and seven sickles) and six tilling tools (two mattocks and four pickaxes). It is important to note that none of those tilling tools may be associated with any form of large-scale cultivation, and formed part of the typical tool kit required for work in orchards or vegetable gardens. There are no tools connected to husbandry (scythes, shears, branding irons, or castration forceps) in the Olympia hoard.⁵¹ The collection of valuables found in 1877 may have well belonged to a local farmer, but the same can hardly be true for the Khürlets assemblage. Found in a tower of the early Byzantine fortification, that hoard produced a gold coin and a gilded silver bow fibula. Even though the fibula has not yet been properly published, and it is therefore impossible to assess its significance without knowing its type, another gilded silver bow fibula from that same site was also found in a tower.⁵² In fact, most other bow fibulae in Bulgaria were found on military hilltop sites such as Sadovets and Gigen.⁵³

In Serbia, coin hoards found on such sites produced weighing balances. Neither that in Hajdučka Vodenica nor the one found in the Niš 1900 hoard have been properly published.⁵⁴ Thirty-two balance finds

are so far known from East Central and Southeastern Europe, many of them found in burial assemblages, often in association with weapons, outside the early Byzantine provinces in the Balkans (appendix 2).⁵⁵ A distribution map of those finds shows a clear cluster in the same northern part of the Balkans in which two of the hoards with balances have been found (fig. 1). Much like in central Serbia and northern Bulgaria, most balance finds from present-day Slovenia have been found on sixth- and early seventh-century fortified sites. In hoards found inside the Empire (Hajdučka Vodenica), as well as in burial assemblages from beyond its frontiers (Brno, Jutas, Kranj, Kunszentmárton), balances were accompanied by weights, which are otherwise documented in three other hoards of Byzantine coins, Skačinci, Abrit, and Stobi.⁵⁶ In Abrit, all three weights were square, one marked as the equivalent of three solidi (NT), the other two as the equivalent of one solidus each (N). Only three weights of the former type are so far known from the entire Balkan region (see appendix 3). Despite being marked the same way, they are of different weight. The same is true for the 58 analogies of the weights for single solidi from the Abrit hoard. The variation in weight is less pronounced for the six analogies known for the square weight for 1 semissis found in the Skačinci hoard. The distribution map of all those weights shows another cluster of finds in the northeastern region of the Balkans (fig. 2), even if the many un-provenanced weights from the Numismatic Museum in Athens may have been found in present-day Greece. As with balance finds, the majority of those bronze weights were found on early Byzantine, hilltop sites, some of which have been excavated.⁵⁷ Hoards

51 Völling, "Ein frühbyzantinischer Hortfund"; T. Völling, "Early Byzantine Agricultural Implements from Olympia (5th/6th centuries AD)," in *Πρωτοβυζαντινή Μεσσηνία* (n. 33 above), 195–207.

52 S. Mashov, "Rannosrednovekovni fibuli ot Avgusta pri s. Khürlets, Vrachanski okrüg," *Arkheologiya* 18, no. 1 (1976): 35–36 with 36 fig. 1 (found in tower 4). The second Khürlets fibula is of the square-headed type with rich ornamentation in Animal Style I most typical for assemblages in Denmark and western Sweden. It is therefore a unique find for the Balkans.

53 Uenze, *Die spätantiken Befestigungen* (n. 41 above), pls. 127–29; A. Kharalambieva, "Gepidisches Erbe südlich der unteren Donau," in *International Connections of the Barbarians of the Carpathian Basin in the 1st–5th Centuries A.D.: Proceedings of the International Conference Held in 1999 in Aszód and Nyíregyháza*, ed. E. Istvánovits and V. Kulcsár (Nyíregyháza and Aszód, 2001), 457 and 456 fig. 2.4.

54 Both are simply mentioned, without any further details in V. Kondić, "Le trésor de monnaies d'or de Hajdučka Vodenica (limes Danubien)," in *Caričin Grad: Les basiliques B et J de Caričin Grad, quatre objets remarquables de Caričin Grad, le trésor de Hajdučka Vodenica*, ed. N. Duval and V. Popović (Belgrade and Rome, 1984), 179, and Z. Vinski, "Krstoliki nakit epohe seobe naroda u Jugoslaviji," *Vjesnik arheološkog muzeja u Zagrebu* 3 (1968): 109. Nor

are any details known about the balance found in the Dragoinovo hoard, for which see Gerasimov, "Kolektivni nakhodki" (n. 33 above).

55 The remains of a fifth-century balance found in Capidava in a building destroyed at the end of the sixth century have not been included in appendix 2. See Z. Covacef, "Accesorii ale unei balanțe din bronz descoperite în sectorul de est al Capidavei," *Pontica* 43 (2010): 267–75.

56 V. Lilčić and K. Adžievski, "Coin Hoard Discovered in the Veles District," *Macedonian Numismatic Journal* 3 (1999): 73–80; S. Torbatov, "Rannovizantiisko zlatno monetno sükrovishte ot Zaldapa (provinciia Skitiia)," *Numizmatika i sfragistika* (Sofia) 5, no. 1 (1998): 64–69. There was a square exagium in a hoard of copper recently found at Stobi (Hadji-Maneva, "Early Byzantine Coin Circulation" [n. 21 above]).

57 Odürtsi: L. Doncheva-Petkova and S. Torbatov, "Zur Chronologie der Architektur der spätromischen und

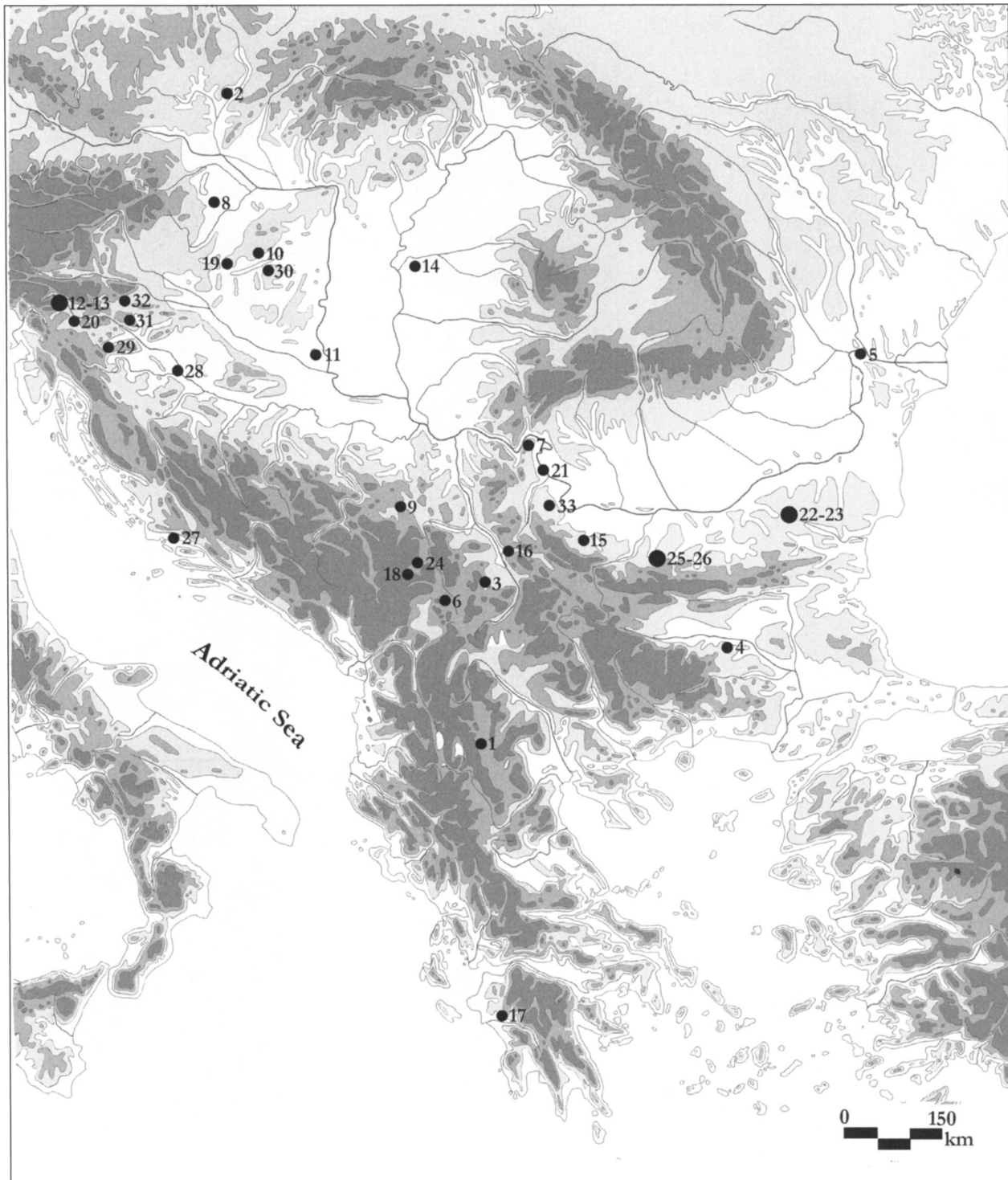


FIG. 1 Distribution of sixth- to seventh-century balance finds in East Central and Southeastern Europe. Lowest contour 200 m, thereafter 500 m and over 1000 m. Smaller circles for one, larger circles for more than two specimens. Numbers refer to the list in Appendix 2. (All illustrations by the authors.)

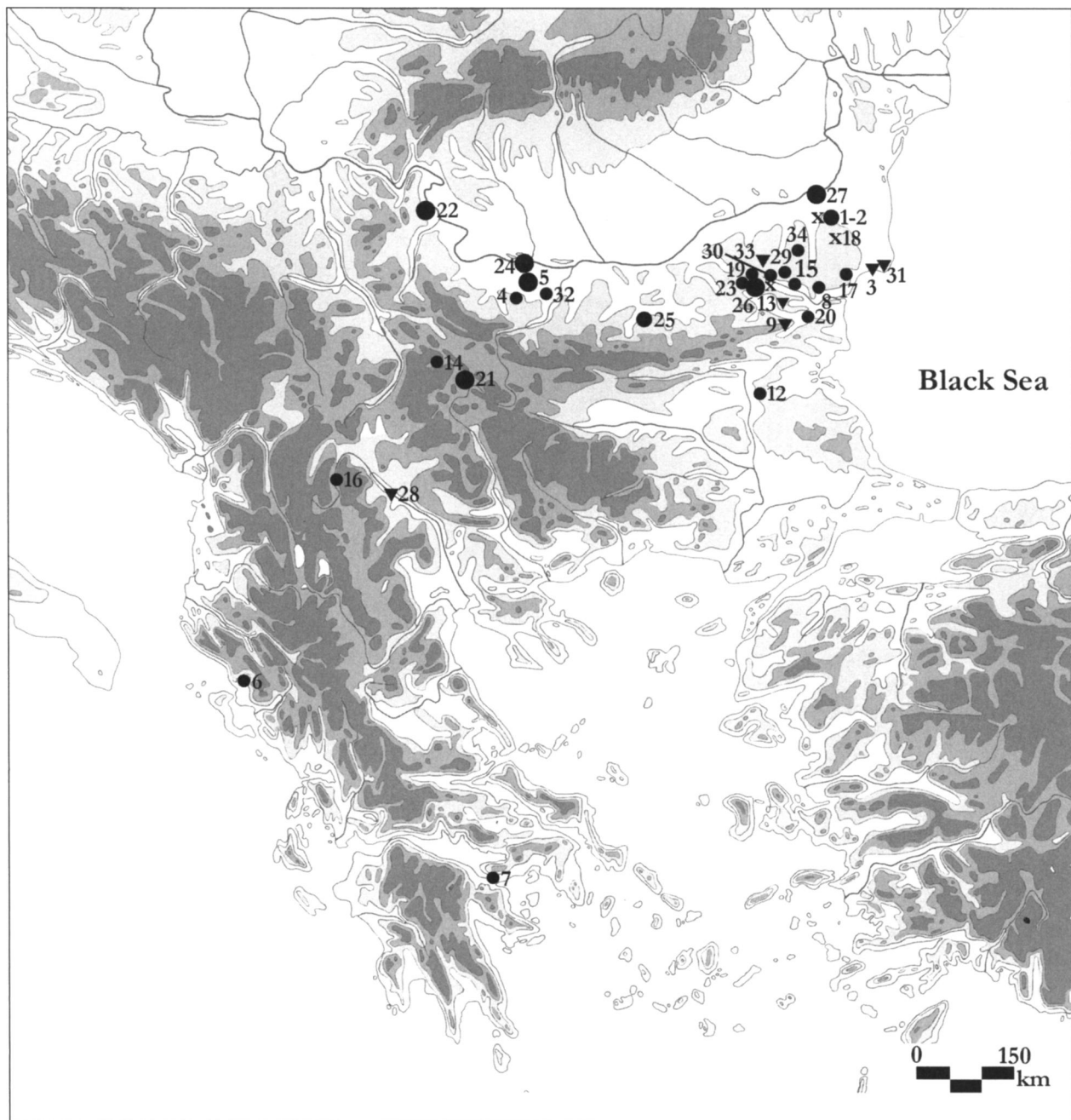


FIG. 2 Distribution of sixth-century bronze weights marked for three solidi (x), one solidus (circle), and one semissis (triangle). Lowest contour 200 m, thereafter 500 m and over 1000 m. Smaller circles for one, larger circles for more than two specimens. Numbers refer to the list in Appendix 3.

with balances and weights appear mostly in the Balkan region, for with two exceptions no such artifacts are known from contemporary hoards from other regions of the Empire.⁵⁸

Many more hoards of sixth- to seventh-century Byzantine coins include dress accessories. More than half of them are hoards of gold, but dress accessories were also found in hoards of copper and silver.⁵⁹ One of the commonest accessories associated with gold or silver coins is the finger ring. The ring from the Adamclisi 1908 hoard, now lost, is described as having a cross inscribed on the bezel.⁶⁰ The one from the Goren Kozjak (Bargala) hoard has a cameo on the bezel, as well as a hardly understandable Greek inscription on the ring.⁶¹ This ring is very similar to another

accidentally found at some point before 1936 in the early Byzantine fort at Golemanovo kale (Bulgaria).⁶² A gilded silver imitation of such a ring is known from a very rich, albeit robbed female grave recently excavated in Keszthely-Fenekpuszta (Hungary), together with such high-status markers as a gold belt buckle and a strap end, as well as gilded silver mounts of a drinking horn.⁶³ No analogies are known in the region for the three gold finger rings from the Vid hoard. One of them is a double, articulated ring with monogram, which Frane Bulić first interpreted as a wedding ring.⁶⁴ The other two have deep, rectangular encasements for stones.⁶⁵ Though of a much simpler appearance, the two silver finger rings from the Silistra hoard are equally without parallels in the Balkans or in the adjacent territories in East Central Europe.⁶⁶ The absence of parallels underscores the high value of those finger rings, as well as the high social status of their owners.

Of equal status must have been the owners of the Khürllets and Şeica Mică hoards, both of which produced gilded silver bow fibulae. While nothing more is known about the fibula in Khürllets, the Şeica Mică one is a remarkable specimen of the so-called Ostrogothic fibulae with deep scrollwork ornamentation most typical for the late fifth and the first years of the sixth

frühbyzantinischen befestigten Siedlung bei Odärcei (Provinz Skythien),” in *Karasura*, vol. 1, *Untersuchungen zur Geschichte und Kultur des alten Thrakien: 15 Jahre Ausgrabungen in Karasura; Internationales Symposium Cîrpan/Bulgarien, 1996*, ed. M. Wendel (Weissbach, 2001), 237–45; Z. Kurnatowska and H. Mamzer, “Ergebnisse und Erfahrungen aus den polnischen Untersuchungen in Stärrmen und Odärcei,” in *Post-Roman Towns, Trade, and Settlement in Europe and Byzantium*, ed. J. Henning (Berlin and New York, 2007), 527–42. Shumen: V. Antonova, “Shumenskata krepost prez rannovizantiiskata epokha,” *Godishnik na muzeite ot Severna Bŭlgariia* 13 (1987): 53–68; D. Vladimirova-Aladzhova, “Shumenskata krepost,” in *Rimski i rannovizantiiski gradove v Bŭlgariia*, ed. R. Ivanov (Sofia, 2003), 149–59. Voivoda: A. Milchev and S. Damianov, “Arkheologicheski razkopki na kŭsnoantichnata krepost pri s. Voivoda, Shumenski okrŭg prez 1970 g.,” *Razkopki i prouchvaniia* 10 (1984): 43–84. For early Byzantine weights from Scythia, see G. Custurea, “Ponduri antice ŝi medievale descoperite recent in Dobrogea,” *Pontica* 42 (2009): 677–78.

58 A pair of bronze scales found in the debris on top of the secret chamber of the synagogue of Meroth (Palestine) in which a hoard of gold and bronze has been deposited. See Kindler, “Synagogue Treasure” (n. 13 above), 315. At the 22nd International Congress of Byzantine Studies in Sofia (August 22–27, 2011), K. Golan presented a spectacular hoard of coins, jewelry, and liturgical objects recently found in Gaza. The hoard includes two bronze scales.

59 Unknown jewels made of gold have been found in the Orsk, Blatnica, and Shestakovo hoards, for which see Kropotkin, *Klady vizantiiskikh monet* (n. 46 above), 26; Ž. Demo, *Ostrogothic Coinage from Collections in Croatia, Slovenia, and Bosnia & Herzegovina* (Ljubljana, 1994), 235–36. The Shestakovo hoard also had silver jewels of an equally unknown kind. Two “bronze clasps” are known from the Kenchreai 1963 hoard, but no other details exist for those dress accessories. See R. H. Hohlfelder, “A Sixth-Century Hoard from Kenchreai,” *Hesperia* 42 (1973): 89–101.

60 Ocheşeanu, “Tezaurul de monede bizantine” (n. 33 above), 163.

61 B. Aleksova and C. Mango, “Bargala: A Preliminary Report,” *DOP* 25 (1971): 273 and pls. 50–51.

62 Uenze, *Die spätantiken Befestigungen* (n. 41 above), pl. 6.17.

63 R. Müller, “Ein germanisches Grab der Frühwarenzeit aus Keszthely-Fenekpuszta,” *ActaArchHung* 51 (1999–2000): 345 and 348 pl. 5.6.

64 F. Bulić, “Ripostoglio dell’ornato muliebre di Urbica e di suo marito trovato a Narona (Vid di Metković),” *Bulletino di archeologia e storia dalmata* 25 (1902): 197–212.

65 I. Marović, “Ostava bizantskih zlatnika iz Narone,” *Vjesnik za arheologiju i historiju Dalmatinsku* 99 (2006): 248 figs. 3–4; A. Piteša, *Katalog nalaza iz vremena seobe naroda, srednjeg i novog vijeka u Arheološkom muzeju u Splitu* (Split, 2009), 47–48.

66 S. Angelova and V. Penchev, “Srebŭrno ŝŭkrovishte ot Silistra,” *Arkheologija* 31, no. 2 (1989): 39 figs. 5.1–2 and 6.1–2; 40 fig. 7.4–5. Equally unique is the gold disc-fibula from Vid, a specimen of a class imitated in the Frankish area and beyond during the seventh century. See Marović, “Ostava bizantskih zlatnika,” 248 fig. 5; M. Rudnicki, “Eine Scheibenfibel mit Mittelbuckel aus dem masurischen Gräberfeld Leleszki und das Problem der späteren Stufe der Olsztyn Gruppe,” *Archaeologia Litwana* 7 (2006): 80–84; T. Vida, “Das Gräberfeld neben dem Horreum in der Innenbefestigung von Keszthely-Fenekpuszta,” in *Keszthely-Fenekpuszta im Kontext spätantiker Kontinuitätsforschung zwischen Noricum und Moesia*, ed. O. Heinrich-Tamáska (Budapest and Leipzig, 2011), 407–8.

century.⁶⁷ In addition, the Șeica Mică hoard produced a gold earring with an open-work, polyhedral pendant. Such earrings are most typical for rich and very rich, late fifth- or early sixth-century female graves in the Middle Danube region.⁶⁸ Cheaper imitations made of bronze were found in hoards of early Byzantine copper.⁶⁹ Silver earrings with open-work, star-shaped pendants such as those found in the Silistra and Sadovets 1937 hoards appear in sixth-century burial and settlement assemblages in Macedonia, Greece, and Romania.⁷⁰ Later variants (of Zlata Čilinská's classes IIB or IIC) appear in hoards of silver, such as Prișeaca and Zemiansky Vrbovok.⁷¹ In addition, the latter produced a torc, a bronze bracelet, a croissant-shaped pendant, and silver belt mounts. The association of coins and belt mounts is also documented in the Akalan hoard.⁷² As Uwe Fiedler has noted, the gold mounts were part of a set for

a belt with multiple straps, which had been added to the collection of coins most likely because of their intrinsic value.⁷³ Given that belts with multiple straps were a distinctive marker of warriors on horseback and a "nomadic" fashion, Akalan represents the male counterpart to collections of gold (such as Vid or Goren Kozjak) that combine coins with typically female dress accessories.

The same may be true for the much more modest hoard from Veliko Orașje, which produced a B-shaped bronze buckle.⁷⁴ Such buckles are common on military sites in the Balkans (e.g., Iatrus/Krivina), but appear also in the Caucasus region, in Syria, and in Egypt.⁷⁵ They were most certainly produced in the Balkans, as demonstrated by the steatite mold found in a workshop excavated in the southwestern residential quarter of Caričin Grad.⁷⁶ Equally local was the production of Maltese crosses such as the one attached with a bronze chain to the pin found in the Niš hoard.⁷⁷ Molds for Maltese crosses are known from sixth-century hill forts, as well as from sites beyond the Danube frontier of the Empire, in present-day Romania.⁷⁸ A similarly

67 P. Somogyi, "Der Fund von Kleinschelken (Siebenbürgen, 1856) im Lichte neuentdeckter Archivdaten," in Wołoszyn, *Byzantine Coins* (n. 42 above), 426 fig. 1. For a good analogy for the Șeica Mică fibula, see D. Csallány, *Archäologische Denkmäler der Gepiden im Mitteldonaubecken* (Budapest, 1961), 199–200 with pl. 212.3; K. Horedt, *Siebenbürgen im Frühmittelalter* (Bonn, 1986), 25.

68 E.g., V. Ivanišević and M. Kazanski, "La nécropole de l'époque des grandes migrations à Singidunum," in *Singidunum* 3, ed. M. Popović (Belgrade, 2002), 155 pl. 5.T55.2–3.

69 Bratsigovo: N. A. Mushmov, "Izvorūt Sv. Troitsa pri Bratsigovo," *Izvestiia na Bŭlgarskii Arkheologicheski Institut* 5 (1928–29): 328–29; 329 fig. 191. Niš: Vinski, "Krstoliki nakit" (n. 54 above), 109. Stobi: Hadji-Maneva, "Early Byzantine Coin Circulation" (n. 21 above).

70 Silistra: Angelova and Penchev, "Srebŭrno sŭkrovishte" (n. 66 above), 39 fig. 4 and 40 fig. 7.3. For Balkan parallels, see E. Maneva, "Nekropola od krajot na antikata od Herakleja Linkestis," *Macedoniae Acta Archaeologica* 10 (1985–86): 164 and 172 fig. 16; A. Petre, *La romanité en Scythie Mineure (II^e–VI^e siècles de notre ère): Recherches archéologiques* (Bucharest, 1987), 79 and pl. 145 fig. 239c; I. Mikulčić, *Spätantike und frühbyzantinische Befestigungen in Nordmakedonien: Städte, Vici, Refugien, Kastele* (Munich, 2002), 211 and 213 fig. 107.1; G. A. Sotiriou, "Ἀνασκαφαὶ ἐν Νέᾳ Ἀρχιτάλῃ," *Πρακτ. Ἀρχ. Ἑτ.* 111 (1956): 113–15 and pl. 41β.

71 Prișeaca: M. Comșa, "Romanen, Walachen, Rumänen," in *Welt der Slawen: Geschichte, Gesellschaft, Kultur*, ed. J. Herrmann (Berlin, 1986), 139 fig. 17. Zemiansky Vrbovok: B. Svoboda, "Poklad byzantského kovotepce v Zemianském Vrbovku," *Památky archeologické* 44 (1953): 37 fig. 4.9, 21 and 85 fig. 23. For the classification of earrings with star-shaped pendant, see Z. Čilinská, "Frauensmuck aus dem 7.–8. Jahrhundert im Karpatenbecken," *Slovenská Archeológia* 23, no. 1 (1975): 63–96.

72 B. Filov, "Arkheologicheski vesti: Nakhodka pri Akalan," *Izvestiia na Bŭlgarskoto arkheologicheskoto druzhestvo* 3 (1912): 324.

73 U. Fiedler, "Die Gürtelbesatzstücke von Akalan: Ihre Funktion und kulturelle Stellung," in *La culture matérielle et l'art dans les terres bulgares, VI^e–XVII^e s.*, ed. D. Ovcharov (Sofia, 1995), 37–47, esp. 47.

74 Gaj-Popović, "Trois trésors" (n. 41 above), 23–26.

75 M. Schulze-Dörlamm, *Byzantinische Gürtelschnallen und Gürtelbeschläge im Römisch-Germanischen Zentralmuseum, Part 1, Die Schnallen ohne Beschläg, mit Laschenbeschläg und mit festem Beschläg des 6. bis 7. Jahrhunderts* (Mainz, 2002), 12–15 (type A5). For Syrian finds, see also M. Kazanski, *Qal'at Sem'an*, vol. 4, no. 3, *Les objets métalliques* (Beirut, 2003), 36. For numerous finds in *barbaricum*, see I. A. Bazhan and S. Iu. Kargapol'tsev, "B-obraznye riflennye priazhki kak khronologicheskii indikator sinkhronizatsii," *Kratkie soobshcheniia Instituta Arkheologii AN SSSR* 198 (1989): 28–35.

76 B. Bavant, "Les petits objets," in *Caričin Grad*, vol. 2, *Le quartier sud-ouest de la ville haute*, ed. B. Bavant et al. (Belgrade and Rome, 1990), 221–22 and pl. 38.208.

77 Two other pins with crosses are known from Pernik and Golemanovo Kale (Sadovets). See F. Curta, "Before Cyril and Methodius: Christianity and Barbarians beyond the Sixth- and Seventh-century Danube Frontier," in *East Central and Eastern Europe in the Early Middle Ages*, ed. F. Curta (Ann Arbor, 2005), 185 and 214 fig. 8.6. Two silver crosses have been found together with bronze coins, a silver key-ring, and glass beads in the Stobi hoard, for which see Hadji-Maneva, "Early Byzantine Coin Circulation" (n. 21 above).

78 Golemanovo kale: Uenze, *Die spätantiken Befestigungen* (n. 41 above), 164 fig. 9.6. Celei: N. Dănilă, "Tipare de turnat cruci din secolele IV–VI, descoperite pe teritoriul României," *Biserica Ortodoxă Română* 101, nos. 7–8 (1983): 559. For mold finds from

local production may be suggested for the cast fibulae with bent stem from the Bratsigovo and Koprivets hoards on the basis of the remains of a workshop found in Drobeta/Turnu Severin.⁷⁹ Most cast fibulae with bent stems from the northern Balkans have been found on fortified sites, which suggests that they were part of the military uniform.⁸⁰ On the basis of the Bratsigovo and Koprivets hoards, the dating of cast fibulae with bent stems has been restricted to the last third of the sixth century, as the last coins in those two hoards have been struck in 572/73 and 582/83, respectively.⁸¹ In fact, not only cast fibulae with bent stems, but most other bronze dress accessories appear in hoards with the latest coins minted for Justin II, while the latest coins in hoards with gold finger rings are from ca. 585.

Dress accessories also appear in coin hoards from the Near East and from Africa. A hoard found at Humeima in Jordan included a pair of Sassanian gold earrings.⁸² Two gold earrings were found in the hoard of solidi from Palmyra, along with two gold rings, a pectoral cross, and a mount of gold and copper with

semiprecious stones.⁸³ The excavations conducted by the University of Pennsylvania at Scythopolis in Palestine revealed a hoard of solidi hidden under a floor slab together with a gold chain, a gold bangle, and a copper-alloy censer.⁸⁴ Similar accessories—earrings, rings, and pendants—are known from hoards of solidi found in Egypt at Abu Mina⁸⁵ and Minshat Abu Oma.⁸⁶ Outside the Balkans, therefore, jewelry is typically found with hoards of gold. No hoards of copper have been found, though, with dress accessories similar to those of Veliko Orašje, Koprivets, and Bratsigovo. The association of copper-alloy dress accessories and coins may therefore be regarded as another characteristic of Balkan hoards.

Ancient coins appear in hoards from regions with a long monetary history, such as Greece, Palestine, or North Africa. Less than twelve percent of all 346 hoards from Southeastern and Eastern Europe contain ancient coins. Of those, four are hoards of gold, two of which (Șeica Mică and Shumen) typically include coins struck for Theodosius II and Zeno.⁸⁷ All hoards with ancient Greek coins are from Greece.⁸⁸ The most common such

the lands north of the Danube river, see D. G. Teodor, "Tipare din secolele V–XI d. Hr. în regiunile carpato-nistriene," *Arheologia Moldovei* 28 (2005): 162.

79 Mushmov, "Izvorūt Sv. Troitsa" (n. 67 above), 329 fig. 191; A. Kharalambieva and D. Ivanov, "Kūsnoantichni fibuli ot muzeia v Ruse," *Godishnik na muzeite ot Severna Būlgariia* 12 (1986): 9–20 with pl. 1.4. For the workshop, see A. Bejan, "Un atelier metalurgic de la Drobeta-Turnu Severin," *Acta Musei Napocensis* 13 (1976): 257–68. For cast fibulae with bent stem, see now A. Măgureanu, "Fibulele turnate romano-bizantine," *Materiale și cercetări arheologice* 4 (2008): 99–155; F. Curta and A. Gândilă, "Too Much Typology, Too Little History: A Critical Approach to the Classification and Interpretation of Cast Fibulae with Bent Stem," *Archaeologia Bulgarica* 15 (2011): 3:51–81.

80 A. Kharalambieva and G. Atanasov, "Fibuli ot V–VI v. v Shumenskiia Muzei," *IzvNarMus-Varna* 27 (1991): 57. However, the ornament of some specimens carries a clearly Christian symbolism. See A. Kharalambieva, "Darstellungen christlicher Symbole, Inschriften und Heiligen auf Trachtzubehör des 4.–7. Jhs. aus heutigem Bulgarien," in *Radovi*, vol. 13, *Međunarodnog Kongresa za starokršćansku arheologiju: Split-Poreč (25.9.–1.10. 1994)*, ed. N. Cambi and E. Marin, *Studi di antichità cristiana* 54 (Rome and Split, 1998), 367–73.

81 Curta and Gândilă, "Too Much Typology," 67. This dating is confirmed by the association in the "Nestor house" in Sadovets of a cast fibula with bent stem with coins struck for Justin II. See Uenze, *Die spätantiken Befestigungen* (n. 41 above), 156.

82 E. de Bruijn and D. Dudley, "The Humeima Hoard: Byzantine and Sasanian Coins and Jewelry from Southern Jordan," *AJA* 99, no. 4 (1995): 683–97.

83 K. Michalowski, *Palmyre: Fouilles polonaises 1960* (Paris, 1962), 222. One of the two earrings has three chains with bead pendants. Its best analogies were found in the Chios and Lambousa hoard, in the latter case in association with coins struck for Emperor Constantine IV (668–685). See I. Baldini Lippolis, *L'oreficeria nell'impero di Costantinopoli tra IV e VII secolo* (Bari, 1999), 38–39 and 96 nos. 9–10; O. M. Dalton, *Byzantine Art and Archaeology* (Oxford, 1911), 543 fig. 347.

84 G. M. Fitzgerald, *A Sixth Century Monastery at Beth Shan (Scythopolis)* (Philadelphia, 1939), 11.

85 H.-C. Noeske, *Münzfunde aus Ägypten*, vol. 1, *Die Münzfunde des ägyptischen Pilgerzentrums Abu Mina und die Vergleichsfunde aus den Diocesen Aegyptus und Oriens vom 4.–8. Jh. n. Chr.*, vol. 2 (Berlin, 2000), 15.

86 Ibid., 243.

87 Somogyi, "Der Fund von Kleinschelken" (n. 65 above), 440–41; D. Vladimirova-Aladzova, "Numizmatichni dannii za krepostta Stana, Shumensko, prez rannovizantiiskata epokha," *Trudove na katedrite Istoriia i Bogoslovie kŭm Shumenskiia universitet "Episkop Konstantin Preslavski"* 2 (1998): 27–29.

88 A second-century B.C. coin struck in Zeugitania was found in the Hrozová hoard (Kuna and Profantová, *Počátky* [n. 42 above], 286). Coins struck in the fifth century B.C. are known from the Gush Halav hoard from Palestine, which closes with minimi of Justinian. See G. Bijovsky, "The Gush Halav Hoard Reconsidered," *Atiqot* 35 (1998): 77–106. For a similar hoard from Caesarea Maritima, see Waner and Safrai, "Catalogue of Coin Hoards" (n. 14 above), 330 with n. 139. A Hasmonean coin was found in the early Byzantine hoard of Meroth, for which see Kindler, "Synagogue Treasure"

coins are those of Sikyon (Patras 1938, Corinth 1971, and Agios Nikolaos) and Corinth (Olympia, Thebes 1932, and Kenchreai 1963).⁸⁹ There are no republican coins, and early imperial coins are rare.⁹⁰ Similarly, third-century coins appear only sporadically and mostly in hoards from outside the Empire.⁹¹ By contrast, fourth-century coins appear frequently in hoards from the early

Byzantine provinces of Achaia,⁹² Moesia II,⁹³ Moesia I,⁹⁴ Scythia Minor,⁹⁵ as well in hoards from *barbaricum*.⁹⁶ That this was not exceptional results from the presence of fourth-century coins in several sixth- and seventh-century hoards in Egypt.⁹⁷ Similarly, hoards with fifth-century coins are known not only from

(n. 13 above), 316. Punic coins appear in the Aïn Kelba (Algeria) and the Massafra (southern Italy) hoards, both with latest coins struck for the Vandal king Thrasamund (496–523): Morrisson, “La trouvaille d’Aïn Kelba” (n. 35 above), 245; W. Hahn, “Ein Minimifund des frühen 6. Jahrhunderts n. Chr. aus Massafra bei Tarent,” *Litterae Numismaticae Vindobonenses* 3 (1987): 106.

89 *TMB* 240, 248–49, 261–62, 264, and 285–86; R. H. Hohlfelder, “A Small Deposit of Bronze Coins from Kenchreai,” *Hesperia* 39 (1970): 68–72.

90 Both known specimens are from outside the Empire, a coin of Trajan in Plumbuita, and another of Nero in Râncăcioiu. See E. Oberländer-Târnoaveanu, “La monnaie byzantine des VI^e–VIII^e siècles au-delà de la frontière du Bas-Danube: Entre politique, économie et diffusion culturelle,” *Histoire & Mesure* 17, nos. 3–4 (2002): 168–69; Poenaru-Bordea and Dicu, “Monede romane tirzii și bizantine” (n. 33 above), 79. A quadrans of Augustus appears in a hoard recently found in northwestern Peloponnesos (B. Callegher, “Un ripostiglio dal Peloponneso nord-occidentale (ca. 578/579 d.C.): Note sulla tesaurizzazione della moneta bronzea,” *RIN* 110 [2009]: 91 and 110). Early imperial issues are also rare in sixth- or early seventh-century hoards from other parts of the Empire. A quadrans of Nero is known from a mid-sixth-century hoard of 14,827 coins from M’Sila (Algeria: Deloum, “Notes sur le trésor monétaire” [n. 35 above]). Specimens struck for either Trajan or Hadrian are mentioned among the coins of a sixth-century hoard from an unknown location in Syria or Lebanon: M. Phillips and S. Tyler-Smith, “A Sixth-Century Hoard of Nummi and Five Nummi Pieces,” *NC* 158 (1998): 316–24. Coins from the third century are more common in hoards from Algeria concealed in the first decades of the sixth century (Nador, Tipasa, and Ain Kelba), for which see Morrisson, “La trouvaille d’Aïn Kelba” (n. 35 above), 244–45. For the reuse of Roman coins, especially first-to-second-century bronzes, in North Africa and Italy, see C. Morrisson, “The Re-Use of Obsolete Coins: The Case of Roman Imperial Bronzes Revived in the Late Fifth Century,” in *Studies in Numismatic Method Presented to Philip Grierson*, ed. C. N. L. Brooke et al. (Cambridge, 1983), 95–111.

91 Coins of Aurelian and Galerius in the Bielsko hoard: Wołoszyn, “Byzantinische Münzen” (n. 42 above), 499. Coins of Septimius Severus and Galerius in the Râncăcioiu hoard: Poenaru-Bordea and Dicu, “Monede romane tirzii și bizantine” (n. 33 above), 79. See, however, the antoninianus struck for Claudius II from a hoard found in northwestern Peloponnesos (Callegher, “Un ripostiglio” [n. 90 above], 91 and 110). Outside the Balkans, 211 third-century coins appear in the M’Sila hoard, for which see Deloum, “Notes sur le trésor monétaire” (n. 35 above).

92 Coins of Gratian in the Thebes 1995 hoard: M. Galani-Krikou, “Θήβα 605–1505 αι. μ. Χ.: Η νομισματική μαρτυρία από την ανασκαφή στο Πολιτιστικό κέντρο,” *Σύμμεικτα* 12 (1998): 165–66. Coins of Constantine the Great and Constantius II in the Corinth hoard: *TMB* 240. Coin of Valentinian III or Theodosius II in the Kenchreai 1963 hoard: *ibid.*, 251.

93 Coins of Constantine the Great and Julian the Apostate in the Pliska hoard: Gerasimov, “Kolektivni nakhodki na moneti prez 1955 godina” (n. 41 above), 325.

94 Coins of Constantine the Great in the Niš 1900 hoard: Vinski, “Krstoliki nakit” (n. 54 above), 109.

95 Coin of Constantine the Great in the Adamclisi hoard: Bogdan-Cătănicu and Poenaru-Bordea, “Un mic tezaur” (n. 28 above), 85 and 88 (who nevertheless reject the idea of this coin belonging to the hoard). Fragments of coins of Julian the Apostate and of Valentinian II in the Histria hoard: Suceveanu and Poenaru-Bordea, *Histria* (n. 24 above), 155–56. A fourth-century specimen is also mentioned among the coins from the Murighiol 1985 hoard: A. Suceveanu et al., *Halmyris*, vol. 1 (Cluj-Napoca, 2003), 170.

96 Coins of Constantine the Great, Constantius II, and Julian the Apostate in the Bielsko hoard: Wołoszyn, “Byzantinische Münzen” (n. 42 above), 499. Coins of Constantine the Great, Constantius II, and Valens in the Kończyce Małe hoard: Wołoszyn, “Byzantinische Münzen,” (n. 42 above), 501. Coins of Constantine the Great and Valens in the Plumbuita hoard: Oberländer-Târnoaveanu, “La monnaie byzantine” (n. 90 above), 168–69. An unidentified fourth-century coin in the Hradec Králove hoard: K. and N. Profantová, *Počátky* (n. 42 above), 283. Unidentified fourth- or fifth-century coins are also said to have been found in the Troianul hoard, for which see E. Oberländer-Târnoaveanu, “Barbaricum apropiat—populațiile din Muntenia și Imperiul bizantin (secolele VI–X)—mărturia numismaticii,” *Ialomița: Studii și comunicări* 4 (2004): 353. Unlike the Empire, in which ancient coins performed a clearly economic function, the collection of old coins in *barbaricum* is a different phenomenon, for which see M. Erdrich, “Überlegungen zu Altstücke in kaiserzeitlichen Grab- und Schatzfunden im mitteleuropäischen Barbaricum,” in *Roman Coins Outside the Empire: Ways and Phases, Context and Function*, ed. A. Bursche, R. Ciolek, and R. Wolters (Wetteren, 2008), 379–88.

97 Hawara: Noeske, *Münzfunde* (n. 85 above), 343–44. Antinoe: *ibid.*, 359–60. Luxor: *ibid.*, 399–401. Unknown location in Egypt: *ibid.*, 418–23. Besides several early Byzantine 12-nummus specimens, the Antinoe hoard produced a maiorina of Constantius II of an almost identical weight. Particularly interesting is the Luxor hoard, which spans the entire early Byzantine period and closes with Umayyad coins. The earliest coin in that assemblage is a late fourth-century half-centenionalis.

Greece⁹⁸ but also from the Near East⁹⁹ and Africa.¹⁰⁰ In the Balkans, leaving aside Constanța-Anadolchioi and Zagrade, all hoards with minimi (small coins of AE4 module struck in greater numbers from the last years of the fourth to the early decades of the sixth century) are from Achaia. The Corinth 1971 hoard, for example, included a few coins struck for Claudius II, Tetricus, Constans, Constantius II, and Julian, but also a large number of coins minted under the fifth-century emperors, from Arcadius to Leo I.

Recent studies have shown a great number of the fifth- and early sixth-century minimi from Greek hoards to be of African origin, which nicely dovetails with the archaeological evidence of a contemporary increase in the quantity of African Red Slip wares from Greek sites and the large-scale imitation of North African lamps.¹⁰¹ Most fourth- and fifth-century coins

seem to have been cut up into fractions or clipped down to an average weight of 0.7 to 0.8 grams, in order to render them equal to the standard nummion (the smallest copper denomination) in circulation after 498. If they were indeed treated as nummia, then those clipped coins must have circulated at an overrated value, for most if not all of them are heavier than the theoretical nummia. In other words, the weight of forty minimi is in fact larger than the actual weight of a corresponding follis. The overrated value of the minimi may thus have been based on weight, which could easily be increased by adding lead to the alloy employed for their production. This may have been a deliberate policy designed to promote the coin on the market and inspire the confidence of the population. If so, then that was also the reason for the hoarding of large numbers of such minimi.¹⁰² During the first half of the sixth century, several hoard assemblages included only minimi, often with large quantities of more recent specimens struck under Zeno, Leo I, and Anastasius. The latest coins in minimi-only assemblages with over 500 specimens were struck under Justinian.¹⁰³ Hoards with the latest

98 Thasos: Picard, "Trésors et circulation monétaire" (n. 23 above), 430–32. Corinth 1971: *TMB* 240. Kenchreai 1963: Hohlfelder, "Small Deposit" (n. 89 above). Agia Kyriaki: *TMB* 268–69. Nummia of Marcianus and Zeno in the "Greece" hoard: S. Bendall, "Byzantine Hoards," *Coin Hoards* 3 (1977): 82.

99 The hoard from an unknown location in Lebanon or Syria: Phillips and Tyler-Smith, "Sixth-century Hoard of Nummi" (n. 90 above). Gush Halav hoard from Palestine: Bijovsky, "Gush Halav" (n. 88 above). For the general circulation of fourth- and fifth-century coins in sixth-century Palestine, see G. Bijovsky, "The Currency of the Fifth Century C.E. in Palestine: Some Reflections," *Israel Numismatic Journal* 14 (2000–2002): 196–210, esp. 205–9; G. Bijovsky, "Monetary Circulation" (n. 32 above), ch. 3.10.3.

100 M'Sila: Deloum, "Notes sur le trésor monétaire" (n. 35 above). Hamma: M. Troussel, "Les monnaies vandales d'Afrique: Découvertes de Bou-Lilate et du Hamma," *Recueil des notices et mémoires de la Société archéologique, historique et géographique de la wilaya de Constantine* 67 (1950–51): 180–83. Aïn-Kelba, Carthage, and Nador: Morrisson, "La trouvaille d'Aïn Kelba" (n. 35 above), 243–44. However, it should be noted that the African hoards usually predate the Byzantine reconquest and do not include any of the post-498 larger denominations struck in the Eastern mints, therefore indicating a different circulating medium. For a general discussion of North-African hoards from the early Byzantine period, see S. Deloum, "L'économie monétaire de l'Afrique du Nord: Les trésors monétaires des V^e et VI^e siècles ap. J.-C.," in *Atti del VII Convegno internazionale di studi sull'Africa romana, 15–17 dicembre 1989*, ed. A. Mastino (Sassari, 1990), 961–72.

101 C. Morrisson, "La circulation monétaire dans les Balkans à l'époque justinienne et post-justinienne," in *Radovi* (n. 80 above), 922–23. For African Red Slip wares in Greece, see C. Abadie-Reynal, "Céramique et commerce dans le bassin égéen du IV^e au VII^e siècle," in *Hommes et richesses dans l'Empire byzantin*, ed. J. Lefort (Paris, 1989), 157; J.-P. Sodini, "Productions et échanges dans le monde protobyzantin (IV–VII^e s.): Le cas de la céramique," in *Byzanz als*

Raum: Zu Methoden und Inhalten der historischen Geographie des östlichen Mittelmeerraumes, ed. K. Belke et al. (Vienna, 2000), 188. For sixth- to seventh-century Greek lamps imitating North-African models, see P. Petridis, *La céramique protobyzantine de Delphes: Une production et son contexte* (Athens, 2010), 85–92.

102 C. Morrisson, "Nummi byzantins et barbares du VI^e siècle," in *Χαρακτήρ: Αφιέρωμα στη Μάντω Οικονομίδου*, ed. E. Kypraiou (Athens, 1996), 192; W. Hahn, *Money of the Incipient Byzantine Empire (Anastasius I–Justinian I, 491–565)* (Vienna, 2000), 13; Callegger, "La circulation monétaire à Patras" (n. 20 above), 232; see also Adelson and Kustas, "Sixth-Century Hoard" (n. 25 above), 178. For single finds of minimi indicating that they were indeed in circulation at the time of their hoarding, see R. L. Hohlfelder, "A Conspectus of the Early Byzantine Coins in the Kenchreai Excavation Corpus," *Byzantine Studies* 1, no. 1 (1974): 74; D. I. Pallas, "Ανασκαφή της βασιλικής του Κρανείου ἐν Κορίνθῳ," *Πρακτ. Ἀρχ. Ἑτ.* 131 (1976): 194; Galani-Krikou, "Θήβα 605–1505 αι." (n. 92 above), 145–46; E. Kalantzi-Sbyraki, "Το νησί των Σπετσών κατά τους 'σκοτεινούς χρόνους,'" in *Θωράκιον: Αφιέρωμα στη μνήμη του Παύλου Λαζαρίδη*, ed. I. Kakouris et al. (Athens, 2004), 151; Callegger, "La circulation monétaire à Patras," 229. There were over 350 minimi in the Athens 1933 hoard, which was found in a sixth-century mill outside the Late Roman walls. According to Metcalf, "Slavonic Threat to Greece" (n. 25 above), 140, this indicates that the miller's customers used that very small denomination to pay him.

103 According to Hahn, *Money* (n. 102 above), 58, the striking of minimi ceased in the central mints during Justinian's reign. However, minimi were still struck in Carthage, Rome, and probably Antioch after 527. See Hahn, *Money*, 62 and 68–70. In contrast to

coins struck after 565 typically combine a comparatively smaller number of minimi with other denominations. The most recent hoard with minimi is Pellene 1936, with the latest coin struck in 584/85. However, the most recent minimi-only hoard is Megara 1884, in which the latest coins were struck between 533 and 538. Therefore, the minimi-only hoard seems to have been a relatively short-lived phenomenon in Greece, which could be dated between ca. 500 and ca. 540. This was apparently a period of relative stability of the exchange rate between the solidus and the follis and of a considerable increase in weight for the follis from 9.10 g in 498 to 24.95 g in 538 (the heaviest follis throughout the sixth and early seventh century).¹⁰⁴ As mentioned above, hoards with latest coins struck during this period also include ancient Greek coins, especially coins of Sikyon, which had been out of official circulation for 800 years or more. They must have been picked up locally and reintroduced into circulation as lower denominations on the basis of their weight.¹⁰⁵ Minimi remained in circulation long after ceasing to be struck in any significant numbers, as shown by the Corinth 1971 hoard. In that hoard, minimi and earlier Greek and Roman coins represent over two-thirds of the total value in copper coins.¹⁰⁶ This appears to be a phenomenon so typically

associated with Greek hoards that in the light of those considerations, both the Gamzigrad (only minimi) and the Constanța-Anadolchioi (minimi together with higher denominations) hoards may represent assemblages formed somewhere in the province of Achaia, which were then moved to the northern parts of the Balkans under unknown circumstances.¹⁰⁷

Did then currency in sixth-century Greece circulate by weight and not by the stamped type? The evidence of hoards seems to contradict that idea. Had hoard owners been after heavy coins, then not only they would have avoided minimi—the most unsatisfactory medium for the storage of a capital sum—but they would have preferred folles to any other denomination. Moreover, they would have preferred the heaviest folles of all, those struck between 538 and 550.¹⁰⁸ It appears, therefore, that the owners of all those hoards were interested in the monetary (or face) value of the coins, most likely because of the higher fiduciary nature of the larger copper denominations.¹⁰⁹

Hoard Groups and Periods: Searching for Patterns of Hoarding Behavior

Almost a half of all hoards of copper included in appendix 1 (108 out of 247) are complete and have been published in sufficient detail to allow for tabulation and analysis.¹¹⁰ Taking into consideration the date of the

the situation in the Balkans, the chronological series of Near Eastern and African hoards includes later minimi. For example, a large hoard of minimi from Baalbek includes nummia struck for Justin II (S. Bendall, "A Note on an Axumite Coin from Jerusalem," *Israel Numismatic Journal* 9 [1986–87]: 91) while a minimi-only hoard from Carthage ends with specimens struck for Maurice (Metcalf, "The Coins—1978" [n. 35 above], 66).

104 The standard weight of the follis between 538 and 542 was 24.95 g. The weight dropped to 21.83 g between 542 and 550. On the basis of variation in the weight standard of coins struck in Thessalonike, Hahn, *Money* (n. 102 above), 65 has suggested that in Illyricum, the gold-copper ratio may have been different from that in the eastern provinces of the empire.

105 Each of the smallest bronze coins struck in ancient Sikyon weighs more than two grams. In 538, at the time of its maximum weight, the pentanummion was about 3.5 g. It is therefore possible that before 538, the coins of Sikyon circulated as pentanummia. Dengate, "Coin Hoards" (n. 24 above), 157 believed those coins to have operated as minimi, while at the same time (162) acknowledging that they were heavier than the minimi. As the hoard in discussion closes after 575, the pentanummion must have been at that time between 2 and 2.5 g.

106 Dengate, "Coin Hoards" (n. 24 above), 153–75. The hoard also contains bronze scrap, which must have been collected for its bullion value. In this respect, Corinth 1971 is the only known analogy

for the Horgești hoard, which also contains bronze scrap in the form of bronze sheet and a bronze chain.

107 For Gamzigrad, see Janković, "Le trésor de minimi" (n. 29 above). For Constanța-Anadolchioi, see Mitrea, "Un tezaur de monede bizantine" (n. 41 above). The large number of Greek imitations of North-African lamps found at Tomis (Constanța) offers additional support to the hypothesis that the hoard was assembled in Greece. See G. Papuc, "Opaite de import la Tomis," *Pontica* 9 (1976): 201–5.

108 See above, n. 104.

109 P. V. Shuvalov, "Sluchainye fluktuatsii ili prednamerennyi otbor? (Tri klada folisov poslednei chetverti VI v.)," *Stratum+* 6 (1999): 105, in reference to the Thebes 1932 hoard.

110 We have excluded from analysis 28 hoards for which detailed information has been published, but which are known to be incomplete. Also excluded are the hoards of small change recently found during the excavations at Kalendarhane in Istanbul, for which see M. Hendy, "Roman, Byzantine and Latin Coins," in *Kalendarhane in Istanbul: The Excavations*, ed. C. L. Striker and Y. Doğan Kuban (Mainz, 2007), 274; and Cape Shabla (Bulgaria), for which see Torbatov, "Rannovizantiisko monetno sükrovishte" (n. 29 above). The former is from a large urban center, with no parallel in the

TABLE 1. Monetary reform periods in early Byzantium

Reform periods	Years
First	498–538
Second	538–542
Third	542–550
Fourth	550–565
Fifth	565–570
Sixth	570–578
Seventh	578–580
Eighth	580–616
Ninth	616–625
Tenth	625–629
Eleventh	629–631

latest coin, the hoards in appendix 1 marked as having copper may be divided into three groups. The first group consists of 25 hoards with latest coins struck between 498 and 565 and covering the first four periods of monetary reform (table 1 and fig. 3).¹¹¹

Balkans, while the latter has a relatively large number of unidentified coins (12 out of 36). The hoard identified by Andrei Gândilă in a collection of coins from Dobrudja is incomplete. See A. Gândilă, "A Collection of Byzantine Coins from Scythia," *Cercetări Numismatice* 14 (2008): 289–303. The same is true for the hoard from an unknown location in northwestern Peloponnesos, for which see Callegher, "Un ripostiglio" (n. 90 above), 89–90 and 110–19.

111 For the periods of monetary reform, see W. Hahn, *Moneta Imperii Byzantini*, vol. 1 (Vienna, 1973), 27–28; W. Hahn, *Moneta Imperii Byzantini: Von Justinus II. bis Phocas (565–610)* (Vienna, 1975), 15–16; W. Hahn, *Moneta Imperii Byzantini: Von Heraclius bis Leo III./Alleinregierung (610–720)* (Vienna, 1981), 16–20. However, since our main criterion has been the changing relation between copper and gold we have ignored the 512 reform and treated the period 498–538 as homogeneous. The fiduciary nature of the early coinage of Anastasius (498–512) and its over-evaluation in relation to the solidus is still a debated issue. C. Zuckerman, *Du village à l'empire: Autour du registre fiscal d'Aphroditô, 525/526* (Paris, 2004), 81–83,

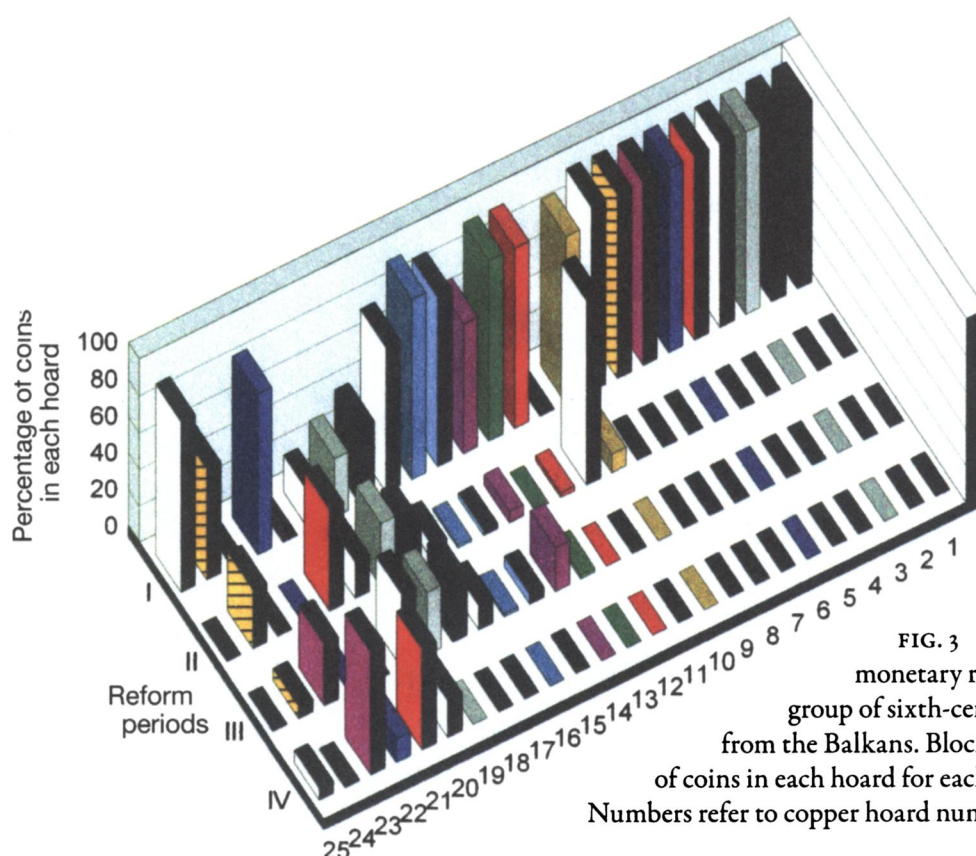


FIG. 3 Distribution of coins by monetary reform periods in the first group of sixth-century hoards of copper from the Balkans. Blocks show percentages of coins in each hoard for each period (see table 1). Numbers refer to copper hoard numbers in appendix 1.

With just two exceptions (Radingrad and Stari Slankamen) they all include coins struck during the first reform period (498–538), which make up more than eighty percent of all coins found in this group of hoards (fig. 4). By contrast, the second group has fewer coins from the first four reform periods, but a considerable number of coins from the sixth period (570–578; see fig. 5). The second group includes two-thirds of all hoards considered for analysis, and typically ends with coins struck between 565 and 601 (fig. 6). The final group has only nine hoards, with the latest coins struck after 605 (fig. 7).¹¹² Such hoards typically include a large number of coins from the eighth reform period (580–616), but almost no coins from the first four periods (fig. 8). That the sharp differences between the first group, on one hand, and the second and third groups, on the other hand may have something to do with the quantity and quality of coins available to hoard owners results from a comparison of all three groups with eleven hoards from the diocese of Oriens (fig. 9).¹¹³ Unlike in the second group of Balkan hoards, the heaviest series belonging to the second reform period (538–542) is almost completely absent, while coins from the third (542–550), and fourth periods (550–565) are very scarce. However, almost none of the collections from Syrian or Palestinian hoards ends before the eighth period of monetary reform (580–616). Moreover, unlike the hoards from the third Balkan group, hoards from Oriens typically include a relatively large number of coins struck during the first period of monetary reform. In five out of nine hoards including such coins (Amman 1983, Northern Syria 1974, Kirbet Deir Dassawi, Kirbet Dubel, and Kirbet Fandaqumya) those are the most numerous coins in the collection. To judge from this comparison, by the year 600 coins

now suggests an exchange rate based on weight for the period 498–512. A strong advocate of the fiduciary nature of the early Byzantine copper coinage is F. Carlà, *L'oro nella tarda antichità: Aspetti economici e sociali* (Turin, 2009), 336–55 and 390–410.

112 Unlike all other hoards considered for analysis in this paper, Obârşeni includes 7 coins struck for Constans II (four folles and three half-folles). Being an outlier in that respect, the hoard was left out of the comparison in figure 7, although its composition was taken into consideration for figure 8.

113 Noeske, *Münzfunde* (n. 85 above), 434–40 (Paphos), 449–51 (Anemurium), 453–68 (Cyrrhus), 494–508 (Northern Syria 1974), 516–22 (Syria 1974), 536–40 (Khirbet Dubel), 541–62 (Tel Bissé), 564–73 (Heliopolis), 595–97 (Khirbet Fandaqumya), 632–39 (Khirbet deir Dassawi), 682–88 (Amman).

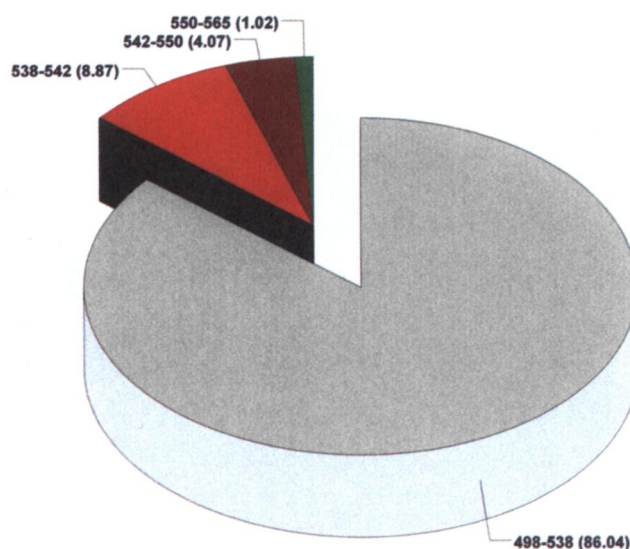


FIG. 4 Monetary reform periods represented in the first group of sixth-century hoards of copper found in the Balkans (nos. 1–25).

struck between 498 and 538 were still available locally in Syria and Palestine, but not in the Balkans.¹¹⁴

Why are there not more coins of the first period of monetary reform in hoards of the second and third groups? The monetary value of the copper coins varied considerably throughout the sixth century, as a consequence of the variations in reckoning the folles to the solidus (as money of account) introduced by several monetary reforms (table 2).¹¹⁵ The value of a

114 Apparently disregarding the evidence of hoards, G. L. Duncan, *Coin Circulation in the Danubian and Balkan Provinces of the Roman Empire AD 294–578* (London, 1993), 147, believed that by 580 the higher denominations struck before 538 had already disappeared from circulation.

115 Hahn, *Moneta Imperii Byzantini*, vol. 1 (n. 111 above), 27–28; idem, *Von Justinus II. bis Phocas* (n. 111 above), 15–16; idem, *Von Heraclius bis Leo III.* (n. 111 above), 16–20; idem, *Money of the Incipient Byzantine Empire* (n. 102 above), 13–20; idem, *Money of the Incipient Byzantine Empire Continued (Justin II—Revolt of the Heraclii, 565–610)* (Vienna, 2009), 9–11; C. Morrisson, “Monnaie et prix à Byzance du V^e au VII^e siècle,” in *Hommes et richesses dans l’Empire byzantin* (n. 101 above), 248 (table 2); Morrisson and Ivanišević, “Les émissions,” (n. 17 above), 51 (table 2); Zuckerman, *Du village* (n. 111 above), 83. According to W. Hahn, “Some Remarks on the Historical Value of the Sixth Century Byzantine Copper Currency,” *Journal of Numismatic Fine Arts* 1, no. 10 (1973): 177–78,

FIG. 5 Monetary reform periods represented in the second group of sixth-century hoards of copper found in the Balkans (nos. 26–98).

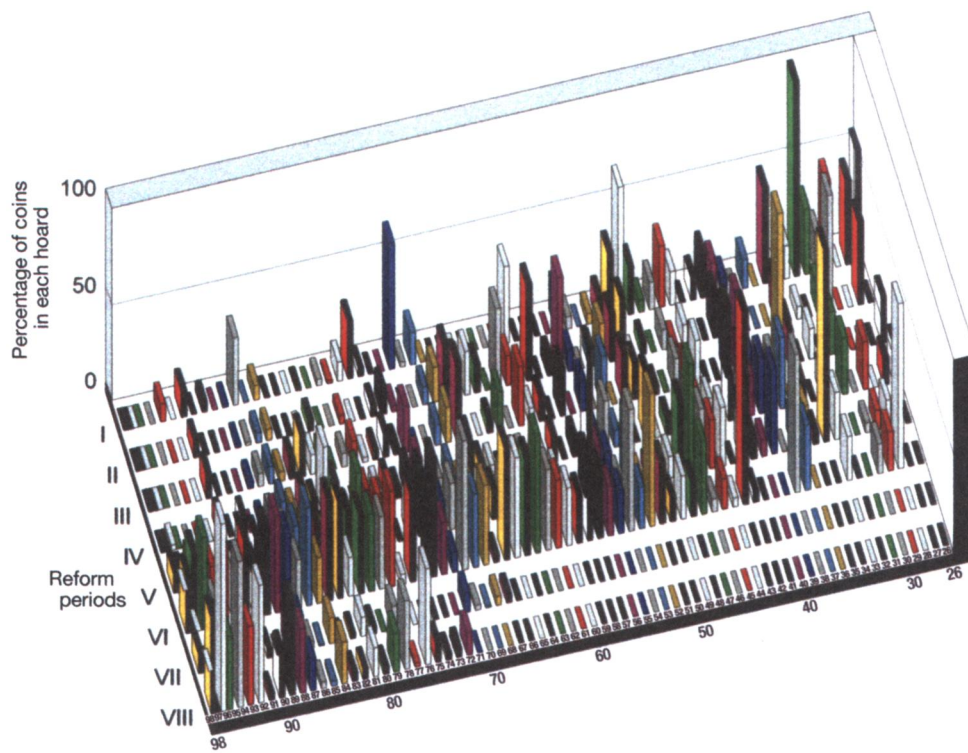
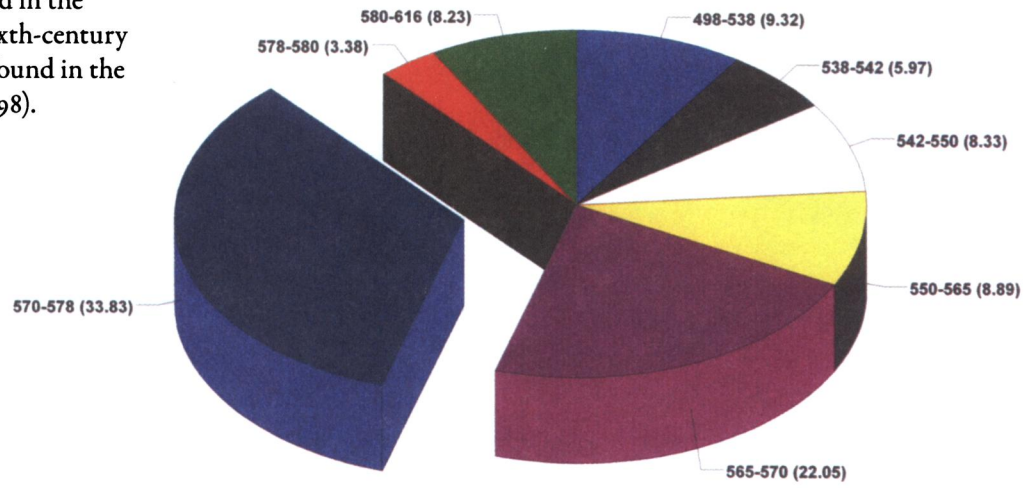


FIG. 6 Distribution of coins of various reform periods found in the second group of sixth-century hoards of copper from the Balkans. Blocks show percentages of coins in each hoard for each period. Numbers refer to copper hoard numbers in appendix 1.

FIG. 7 Distribution of coins of various reform periods found in seventh-century hoards of copper (the third group) from the Balkans. Blocks show percentages of coins in each hoard for each period. Numbers refer to copper hoard numbers in appendix 1.

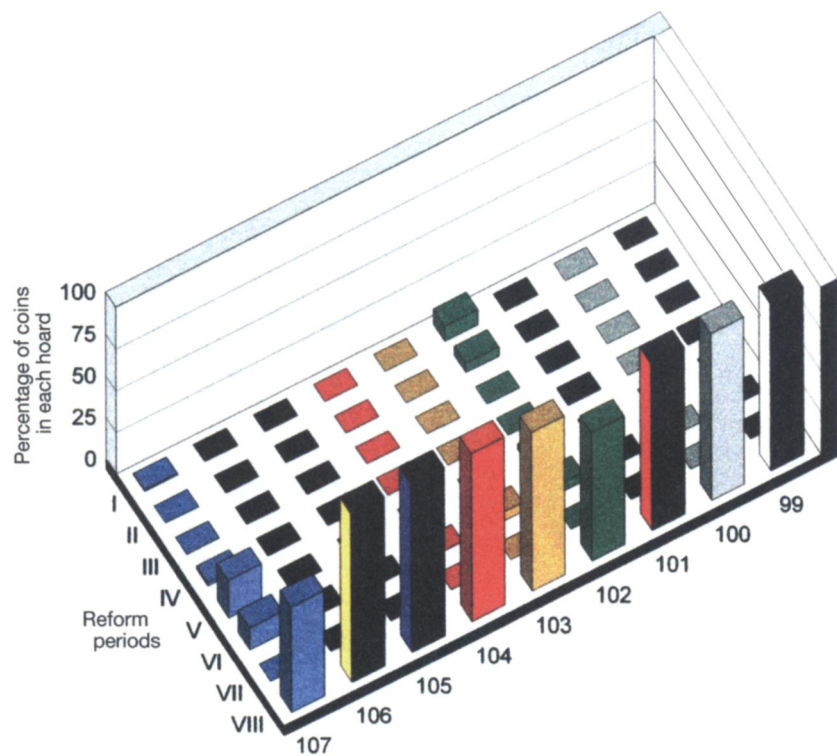
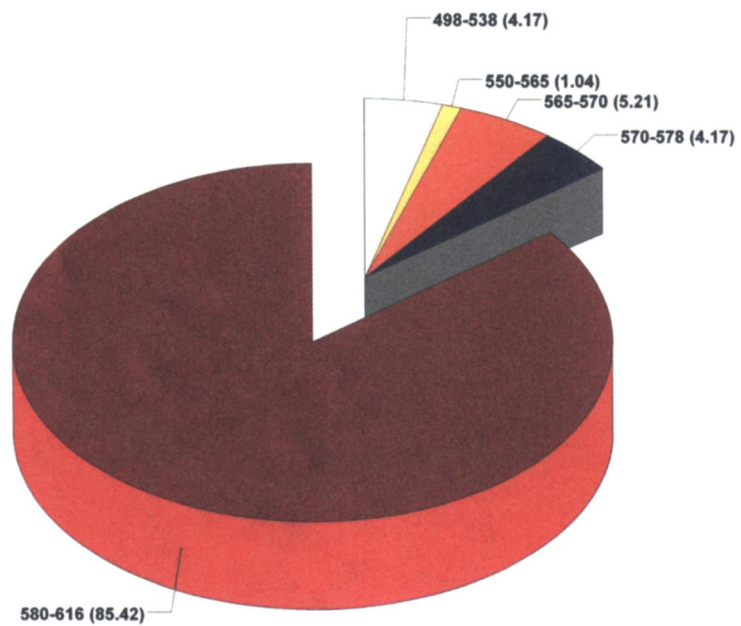


FIG. 8 Monetary reform periods represented in the third group of seventh-century hoards of copper found in the Balkans (nos. 99–108).



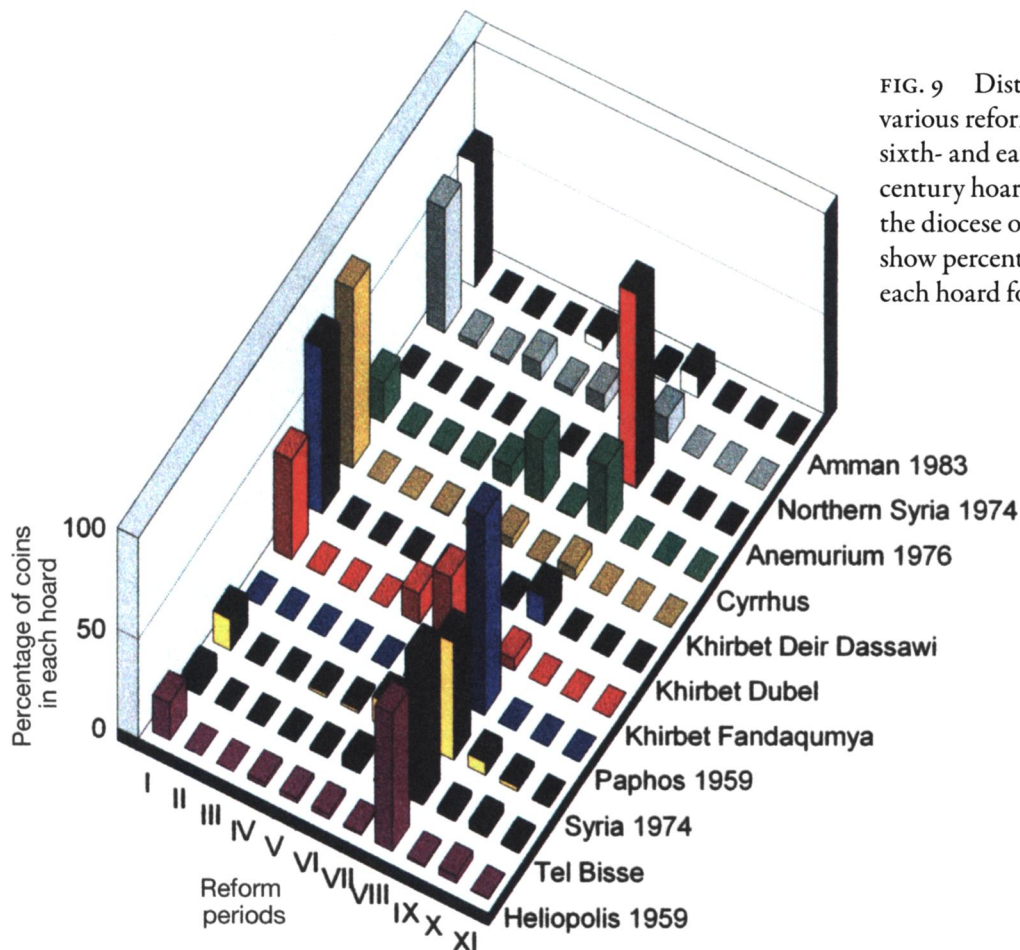


FIG. 9 Distribution of coins of various reform periods found in sixth- and early seventh-century hoards of copper from the diocese of Oriens. Blocks show percentages of coins in each hoard for each period.

hefty collection of copper coins could suddenly drop to almost nothing. That much results from the comparison between the total value of hoard collections calculated on the basis of the exchange rate between gold and copper in operation at the time of the latest coin (fig. 10).¹¹⁶ There is a sharp contrast between the values of the coins struck during the first period of monetary

esp. 177, the gold-copper ratio changed so often because the imperial government was trying to finance Justinian's wearisome wars by means of establishing a compulsory rate of exchange.

116 As Cécile Morisson's ratios are uncertain for several periods, and Constantine Zuckerman's cover only the period between 498 and 565, calculations employed in fig. 10 are based exclusively on the ratios advanced by Wolfgang Hahn in the three *MIB* volumes (n. 115 above). Hahn's new ratios (*Money of the Incipient Byzantine Empire Continued*, 9–11) for the period 565–616 are based on the inclusion of lightweight solidi, the purpose and monetary role of which are still a matter of debate. We have therefore decided to maintain Hahn's ratio propositions from the earlier *MIB* volumes. At any rate, the new ratios would only increase the value of Justin II's folles in

reform in the first and third groups. This strongly suggests that, unlike Syria and Palestine, after ca. 565 in the Balkans high-value copper coins minted between 498 and 538 have become scarce. One can observe a gradual diminishing of their presence in hoards up to the end of the sixth century. In such circumstances, hoard owners had to do with whatever else was available, but the gradual devaluation of copper in relation to gold drastically curtailed their efforts and made relatively large accumulations appear almost worthless.

Only when combining copper and gold (Adamclisi, Goren Kozjak, Sadovets, and Sofia) could hoard owners hope to mitigate the serious effects of the devaluation of copper in relation to gold. It is important to note in this respect that, unlike hoards of copper and gold with latest coins struck before 565 (Novo Selo, Grnčare,

relation to the solidus and would thus produce higher spikes on fig. 10 for the fifth and sixth reform periods, respectively.

TABLE 2. The number of folles to the solidus (498–615)

	Period	Hahn (MIB I–III) ^a	Hahn (MIBE– MIBEC) ^b	Morrisson 1989 ^c	TMB ^d	Zuckerman 2004 ^e
I	498–512	360	360	360/288	576	576
	512–518	360	360	360/288	288	288
	518–527	360	360	360/288	288	288
	527–538	360	360	360/288	288	288
II	538–542	210	210	210	240	240
III	542–550	180	180	180	240	240
IV	550–565	216	360?	360	288	288
V	565–570	525	350	480	480	
VI	570–578	720	480	480	480	
VII	579	216	360	?	480?	
VIII	580–582	600	576	480	480?	
	582–602	600	576	480	480?	
	602–610	600	576	480	480?	
	610–612	600	576	600	480?	
	612–615	600	576	864	960?	

Sources:

^a Hahn, *Moneta Imperii Byzantini*, vol. 1–3 (see n. 111).^b Hahn, *Money of the Incipient Byzantine Empire* (see n. 102) and idem, *Money of the Incipient Byzantine Empire Continued* (see n. 114).^c Morisson, “Monnaie et prix” (see n. 114).^d See n. 4.^e Zuckerman, *Du village à l’empire* (see n. 111).

and Dragoinovo), those of the later periods include a comparatively larger number of gold coins, either solidi or tremisses.¹¹⁷

The hoarding of heavy coins from 538 to 550 also deserves more attention.

Following Gresham’s Law one would expect to find many such coins in hoards concealed shortly after 538, and comparably fewer in the later decades of the century. By that time, many of the “good,” heavy coins would have presumably been out of circulation. As we have seen, large hoards from the Near East

concealed at the end of the sixth century usually have a chronological gap corresponding to the dated issues of Justinian I (538–565), although they contain a large number of coins struck for his predecessors, Justin I and Anastasius.¹¹⁸ Based on the evidence of both hoards

117 Adamclisi: 16 solidi and 9 semisses/tremisses; Goren Kozjak: 2 solidi and 11 tremisses. By contrast, there is only one tremissis in the Grnčare hoard and only three solidi in the Dragoinovo hoard.

118 For a discussion of the conspicuous absence of heavy Justinianic folles from Near Eastern hoards, see P. Grierson, “The Monetary Reforms of Anastasius and Their Economic Consequences,” in *International Numismatic Convention, Jerusalem 1963: The Patterns of Monetary Development in Palestine and Phoenicia in Antiquity*, ed. A. Kindler (Tel-Aviv and Jerusalem, 1967), 296; H. Pottier, *Analyse d’un trésor de monnaies en bronze enfoui au VI^e siècle en Syrie byzantine: Contribution à la méthodologie numismatique* (Wetteren, 1983), 55; C. Morisson, “La monnaie en Syrie byzantine,” in *Archéologie et histoire de la Syrie*, vol. 2,

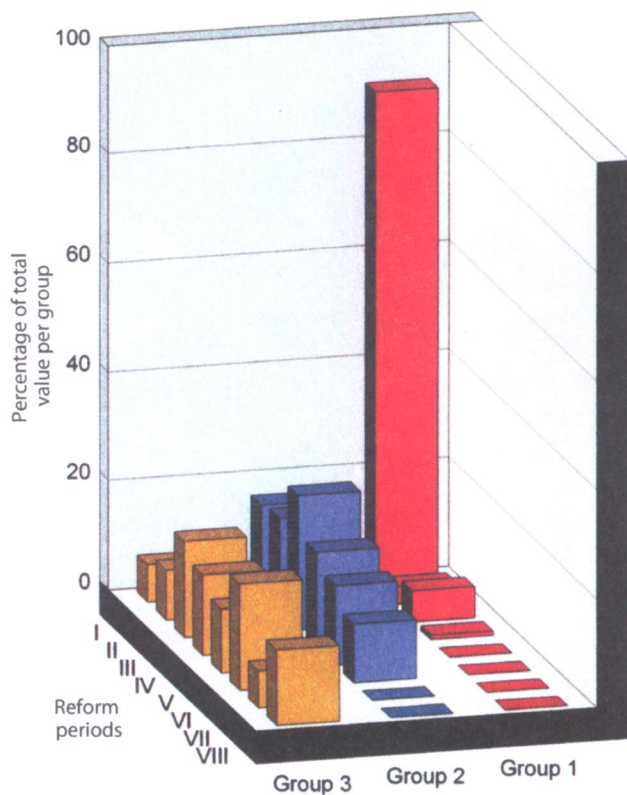


FIG. 10 Comparison of cumulative values of sixth- to seventh-century hoards of copper found in the Balkans. Blocks show the value of the copper in fractions of a solidus (by percentage) for every reform period represented in each group. Group 1: hoards with last coins struck between 512 and 564; group 2: hoards with last coins struck between 565 and 578; group 3: hoards with last coins struck between 579 and 631.

and site finds from the Balkans and the Near East it seems that the large coins of Justinian were more successfully withdrawn from circulation in the Near East, a highly urbanized area, whereas in the Balkans, and especially in the militarized region of the Danube, those

La Syrie de l'époque achéménide à l'avènement de l'Islam, ed. J.-M. Dentzer and W. Orthmann (Saarbrücken, 1989), 192; Morrisson and Ivanišević, "Les émissions" (n. 17 above), 52; P. J. Casey, "Justinian, the *Limitanei*, and Arab-Byzantine Relations in the 6th c.," *Journal of Roman Archaeology* 9 (1996): 220; Noeske, *Münzfunde* (n. 85 above), 152–53; A. Gândilă, "Early Byzantine Coin Circulation in the Eastern Provinces: A Comparative Statistical Approach," *AJNum* 21 (2009): 174–77.

coins continued to circulate for a few decades longer. Coin hoards from the northern Balkans, as a general characteristic, contain heavy specimens well into the 580s (Capidava, Koprivets, Zhülüd, Ohrid, Adamclisi 1908, Athens 1908, and Eleusis 1893).¹¹⁹ It is significant that, with one exception (Veliki Gradac), no such coins seem to appear in any of the hoards concealed in the 590s, a possible sign that by the end of the sixth century the heavy coins of Justinian were not available any more.¹²⁰ On the other hand, the postreform coinage of Justinian is surprisingly scarce in hoards from the first group. With the exception of the Godiachevo hoard, all hoards concealed between 538 and 565 have a higher number of pre-reform coins than heavier issues dated after 538. The heavy coins of Justinian seem to appear in greater numbers only later, in hoards from the second group with the latest coins struck between 565 and the late 580s. Why did hoard owners in the 540s or 550s avoid the heavier and more valuable coins of Justinian in favor of the older pre-reform coinage? The most plausible answer is that such coins were simply not available in sufficient numbers at that time. It is tempting to associate the late infusion of postreform Justinianic issues with the military situation in the Balkans after the arrival of the Avars in the Middle Danube region, and especially with the ample military operations of the late 570s and the early 580s. Heavy coins of Justinian account for more than twenty percent of the hoards found in Slatinska Reka (575/6), Gropeni (577/78),

119 The idea that the heavy series disappeared from circulation soon after its release is therefore wrong, *pace* K. W. Harl, *Coinage in the Roman Economy, 300 B.C. to A.D. 700* (Baltimore, 1996), 197. See Hahn, *Money* (n. 102 above), 57; B. Callegher, "La riforma della moneta di rame del 538 (Giustiniano I) e il ruolo della c.d. legge di Gresham," in *I ritrovamenti monetali e la legge di Gresham: Atti del III Congresso Internazionale di Numismatica e di Storia Monetaria, Padova, 28–29 ottobre 2005*, ed. M. Asolati and G. Gorini (Padua, 2006), 142–44; Noeske, *Münzfunde* (n. 85 above), 153.

120 Such a late date of withdrawal might be related to the difficulty encountered by Justin II and Tiberius II in collecting taxes from the border provinces of the Balkans, a difficulty that received particular mention in the legislation of 566 and 575. See E. Popescu, "Le village en Scythie Mineure (Dobroudja) à l'époque protobyzantine," in *Les villages* (n. 20 above), 379. Of possible relevance is the later account of Theophanes Confessor, according to which, because the imperial treasury could no longer pay the troops on a regular basis, military wages were cut by a quarter in 587, while in 600, for the first time, the Empire could no longer afford to ransom the prisoners taken by the Avars. See Theophanes Confessor, *Chronographia* AM 6079 and AM 6092, ed. C. de Boor (Leipzig, 1883), 260 and 280.

Veliko Orašje (578/79), Varna (578/79), Capidava (579/82), and Koprivets (582/83), which is unusual for such a late date. What seems even more intriguing is the fact that single finds appear in great numbers in the Lower Danube region, which suggests an even larger presence of postreform Justinianic coins. Out of more than two thousand early Byzantine copper coins found in the province of Scythia, over ten percent are issues dated between 538 and 550.¹²¹ Two conclusions seem inescapable. First, the evidence of hoards suggests that most of those coins arrived in the region only after the death of Justinian. Second, there seems to be no basis for the common opinion that heavier coins were more likely to be selected for hoarding.¹²²

In the Balkans, a clear-cut difference in hoarding behavior existed between hoards with the latest coins struck during the first four periods of monetary reform, on the one hand, and those with latest coins struck after ca. 565, on the other hand. The correspondence analysis of 105 hoards of copper with all their identified coins substantiates this observation (fig. 11).¹²³ Eighteen out of the twenty-five hoards of the first group appear in the top left quadrant (fig. 12). Most coins in this group are high denominations (folles) struck between 498 and 538 in Constantinople, but

there is also a large number of 16-nummia specimens from Thessalonike mostly in hoards from Macedonia and the central-northern Balkans (Blagoevgrad, Niš, Skačinci, and Stari Slankamen; figs. 13–14). Given that the peculiar denominations of Thessalonike are rare in central and southern Greece, it is unlikely that trade was responsible for the distribution of the copper coins of Thessalonike.¹²⁴ The movement of troops is a more likely cause for the appearance of 16-nummia specimens struck in the mint of Thessalonike in the regions far to the north from that city, all the way to Stari Slankamen on the Middle Danube.¹²⁵

The largest concentration of hoards on both sides of the horizontal axis (fig. 11) is that from the second group. Most coins from the second, third, fourth, and fifth periods of monetary reform are known from hoards of this group (figs. 15–20). Most coins from the first three periods found in this group are folles from the Constantinopolitan mint (fig. 21). The largest number of coins in the entire group is that from the sixth period (570–578), with an almost equal number of folles and half-folles (fig. 22), while the number of half-folles is larger than that of folles in the fifth period, covering the first years of Justin II's reign (565–570). This is mainly due to the high output of the Thessalonican mint during the reign of Justin II.¹²⁶ In addition, all coins from the seventh period (578–580) found in the second group are half-folles (figs. 23–24). Another peculiar feature of the second group is the relatively large number of $\frac{1}{4}$ and $\frac{1}{8}$ folles—46 and 27, respectively (fig. 25). Hoards with $\frac{1}{4}$ folles have been found in Greece (Eleusis 1993, with 22 specimens; Athens with 9 specimens) and in Dobrudja (Topalu, with 15 specimens). The phenomenon is also attested in hoards from Asia Minor: for example, out of 33 coins in the Sardis 1962 hoard, 28 were $\frac{1}{4}$ folles.¹²⁷ This suggests that the relatively high frequency of the $\frac{1}{4}$ folles in hoards with the latest coins between 565 and 601 is not an exclu-

121 A. Gândilă, "Some Aspects of the Monetary Circulation in the Byzantine Province of Scythia during the 6th and 7th Century," in *Numismatic, Sphragistic and Epigraphic Contributions to the History of the Black Sea Coast*, ed. I. Lazarenko, vol. 1 (Varna, 2008), 306 with table 2. There is no support in the evidence for the old idea that larger coins were less likely to be lost than smaller coins, as argued by P. Grierson, "Circolazione monetaria e tesaurizzazione," in *La cultura bizantina, oggetti e messaggio: Moneta ed economia*, ed. A. Guillou (Rome, 1986), 42, and repeated by K. Sheedy, *Pella in Jordan, 1979–1990: The Coins* (Sydney, 2001), 5.

122 Callegher, "La riforma" (n. 119 above), 129–54.

123 The correspondence analysis was applied to a matrix in which the units are 105 hoards listed with the label "Copper Hoard" in appendix 1, while the variables are the constituent coins, described in terms of denomination, mint, and minting year. The resulting scattergrams show the relations between units (hoards that appear next to each other are in fact very similar in composition), the relations between variables (coins that appear together in multiple hoards are shown close to each other), or relations between units and variables. Because of the large number of graphic symbols, we decided to leave aside the third kind of relation, and to focus only on the first two, followed by zoomed details designed to facilitate the understanding of the scattergrams. The general scattergram showing the relation between hoards also serves as the backdrop for analyzing the distribution by reform periods, denominations, mints, region, and other variables in figures 14, 16–31, and 33–44.

124 Metcalf, "Slavonic Threat" (n. 25 above), 147; Morrisson and Ivanišević, "Les émissions" (n. 17 above), 51. According to D. M. Metcalf, *The Copper Coinage of Thessalonica under Justin I* (Vienna, 1976), 27, the Thessalonican mint may have produced between 15 and 45 million pieces of 16-nummia.

125 Metcalf, *Copper*, 32–33; F. Curta, *The Edinburgh History of the Greeks, c. 500 to 1050: The Early Middle Ages* (Edinburgh, 2011), 86.

126 Gândilă, "Early Byzantine Coin Circulation" (n. 118 above), 209, fig. 4.

127 *TMB* 362.

sively Balkan phenomenon. It is not a coincidence that single finds across the Empire also point to a larger production of $\frac{1}{4}$ folles toward the end of Justinian's reign and of $\frac{1}{8}$ folles throughout the reign of Justin II.¹²⁸

Most hoards with ancient coins and minimi in the Balkans belong to the second group (figs. 26–27). The largest number of minimi so far known is that from the Zagrade hoard (4,360), but most other hoards with minimi appear in Greece. All four hoards containing dress accessories also belong to the second group (fig. 28). Furthermore, only the owners of hoards with last coins dated to the final thirty-five years of the sixth century seem to have had access to specimens produced in the imperial mints located far away from the Balkans, such as Antioch or Carthage (figs. 29–30). This may also suggest the transfer of troops to the Balkans.¹²⁹ At any rate, coins minted in Antioch or Carthage appear to have exchanged many hands before entering the hoards of the second group, for in most cases they are between thirty and forty years older than the latest coin in the collection.¹³⁰ The same is true for the coins from the mint of Kyzikos, the majority of which have also been found in hoards of the second group. In most cases, those coins are between thirty and forty years older than the latest coin in the collection (fig. 31).¹³¹

128 For the increased output of small denominations in this period, see Gândilă, “Early Byzantine Coin Circulation” (n. 118 above), 171 and 179. In addition, a number of hoards are almost exclusively composed of small denominations. See Hendy, “Roman, Byzantine and Latin Coins” (n. 109 above), 294; Gândilă, “Collection” (n. 110 above); Torbatov, “Rannovizantiisko monetno sükrovishte” (n. 29 above), 23–24; S. J. Mansfield, “A Hoard of Twenty Byzantine Copper Coins,” *Numismatic Chronicle* 163 (2003): 354–55.

129 The Agia Kyriaki hoard has a coin struck in Sicily between 538 and 544, which is thus between 30 and 40 years older than the latest coin in that collection. A slightly younger coin from Sicily was found in the Athens 1908 hoard.

130 The largest chronological gap—over 60 years—is that between the three $\frac{1}{4}$ folles minted in Antioch and the latest coin in the Veliko Gradište hoard. There are however a few cases of coins struck in Antioch at the same time as (Sadovets, Goren Kozjak) or just a little before (Eleusis, Histria, Gropeni) the latest coin in the collection. The greatest chronological gap between coins struck in Carthage and the latest coin in the collection is that from the Sadovets 1936 hoard.

131 The largest chronological gap (52 years) between the oldest coin struck in Kyzikos and the latest coin in the collection is that from the Veliki Gradac hoard. In the Megara and Vojnica hoards, the coins from Kyzikos are 39 and 46 years older, respectively, than the latest

The third group of hoards contains mostly folles of a recent date (figs. 32–34). There are indeed no large folles minted under Justinian between 538 and 550, but two late hoards have nonetheless produced a few pieces of 16 (Sofia, 8 specimens) and 5 nummia (Solin, 4 pieces) struck for that emperor. Most coins found in the third group are either from the mint of Constantinople or from that of Nicomedia (fig. 35), no doubt because the provincial mints drastically reduced their output during the early regnal years of Heraclius.¹³² Even though the majority of the coins from the mint of Thessalonike appear in the second group of hoards, a few specimens struck in that mint during the second decade of the seventh century are the latest coins in two hoards from Thasos (fig. 36). Those are the latest hoards from the territory of the Roman province of Macedonia, as most other hoards from that province belong to the second group (fig. 37). This distribution is similar to that of hoards discovered both on the territory of the former province of Dacia Mediterranea, and across the Danube frontier of the Empire, in present-day Romania (figs. 38–39). Similarly, with the exception of three hoards from the third group (Chalkis, Nea Anchialos, and Politika), all other hoards discovered on the territory of the Roman province of Achaia are from the second group (fig. 40). By contrast, no hoards of the third group are known from Thrace or Rhodope, which may signal the collapse of the monetary circulation in those regions. Almost all hoards discovered on the territory of those two provinces belong to the second group (fig. 41). This is also true for the hoards from Dacia Ripensis and Scythia Minor (figs. 42–43). In Moesia II there are just as many hoards of the first as there are of the second group, but no hoards are known of the third group (fig. 44).

There are several conclusions to be drawn from this detailed analysis of 105 hoards of copper from the Balkans. With one exception (Sofia), all coins struck during the first, second, and third periods of monetary reform (498–550) appear only in hoards of the first and second groups. Most specimens of the first period are

coin in the collection. Just as with the coins from Antioch, there are hoards in which the coins struck in Kyzikos are either of the same age as (Majsan and Murighiol) or just a little earlier than (Adamclisi, Belovo) the latest coins.

132 Gândilă, “Early Byzantine Coin Circulation” (n. 118 above), 218, figs. 19a and 19b.

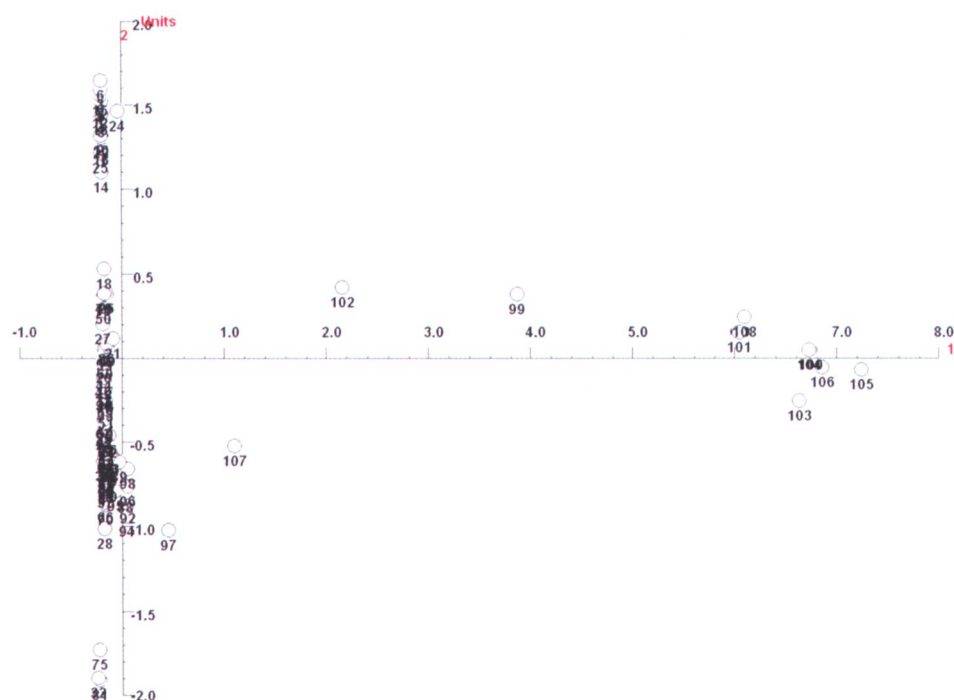


FIG. 11 Correspondence analysis of 105 sixth- to seventh-century hoards of copper found in the Balkans, in relation to their coin types. Numbers refer to copper hoard numbers in appendix 1.

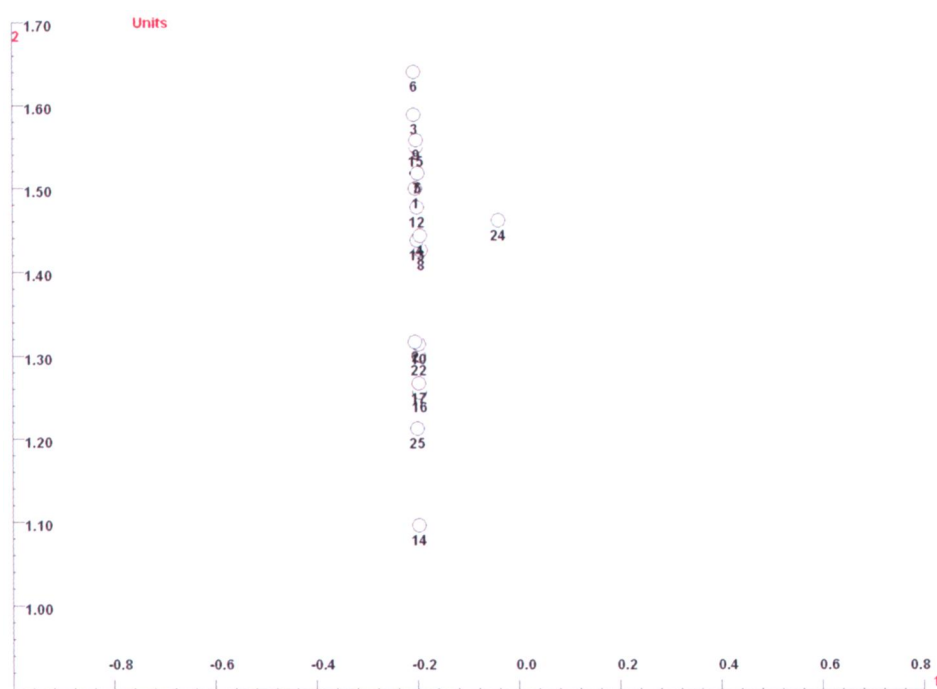


FIG. 12 Detail of the correspondence analysis of fig. 11, showing most hoards of the first group. Numbers refer to copper hoard numbers in appendix 1.

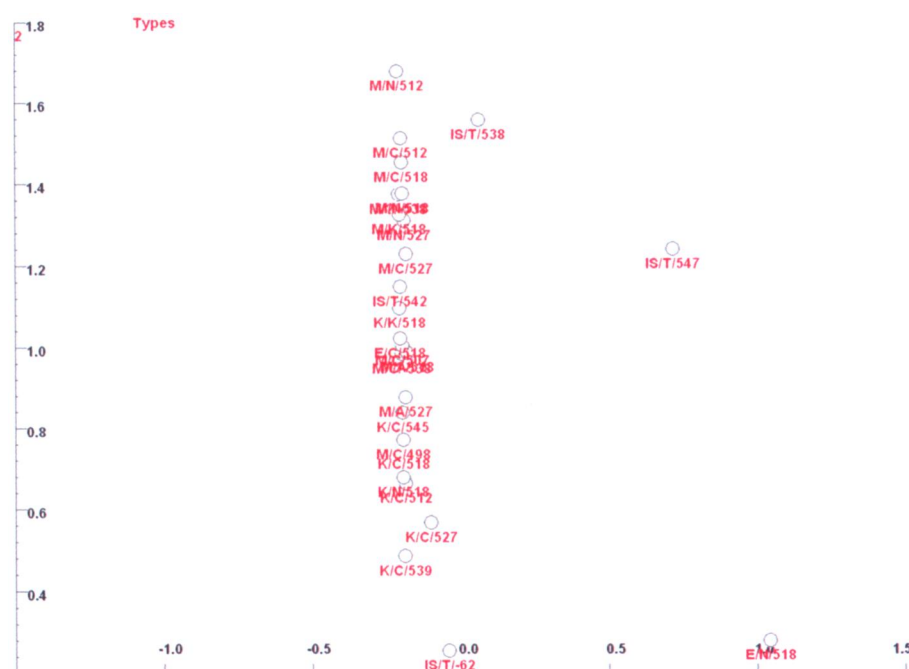


FIG. 13 Details of the correspondence analysis of 105 sixth- to seventh-century hoards of copper found in the Balkans, showing the coin types associated with the hoards of the first group. Each label is composed of three parts: denomination (IS = 16-nummia; K = 20-nummia; M = 40-nummia), mint (A = Antioch; C = Constantinople; K = Kyzikos; N = Nicomedia; T = Thessalonike), and minting date.

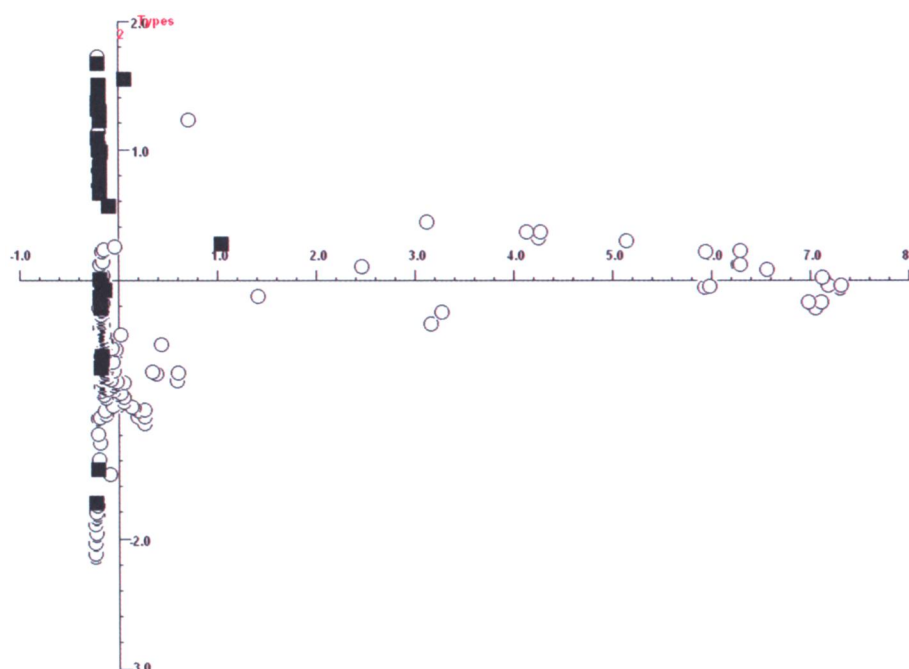


FIG. 14 Correspondence analysis of coin types found in 105 sixth- to seventh-century hoards of copper from the Balkans. Filled squares indicate coins struck between 498 and 538.



FIG. 15 Detail of the correspondence analysis of 105 sixth- to seventh-century hoards of copper found in the Balkans, showing hoards of the second group (copper hoard nos. 26–98), with associated coin types. Hoard numbers refer to the list in Appendix 4. For mint and denomination abbreviations, see fig. 10.

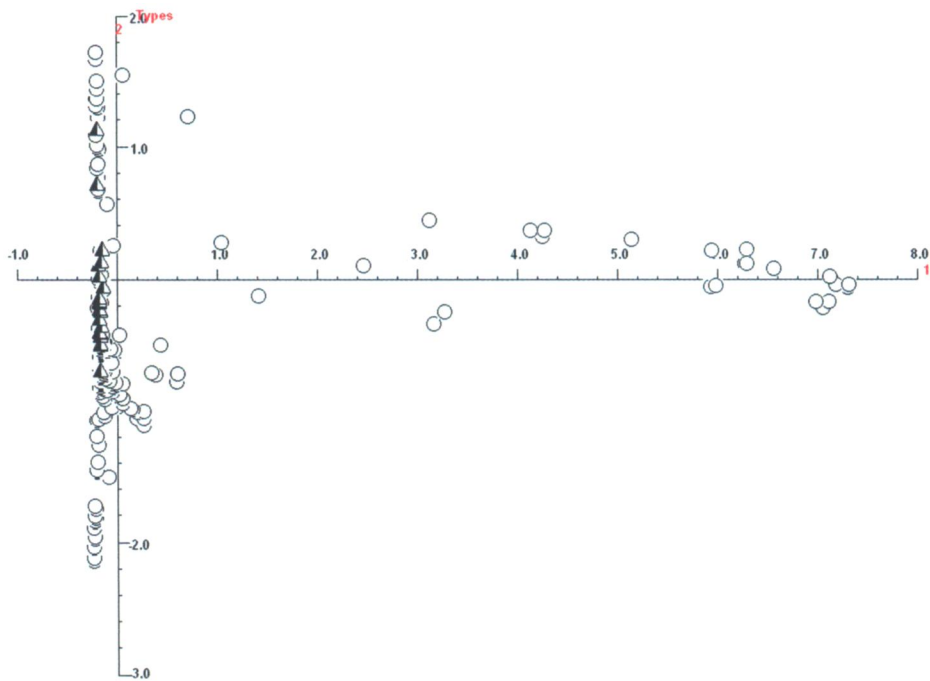


FIG. 16 Correspondence analysis of coin types found in 105 sixth- to seventh-century hoards of copper from the Balkans. Half-filled triangles indicate coins struck between 538 and 542.

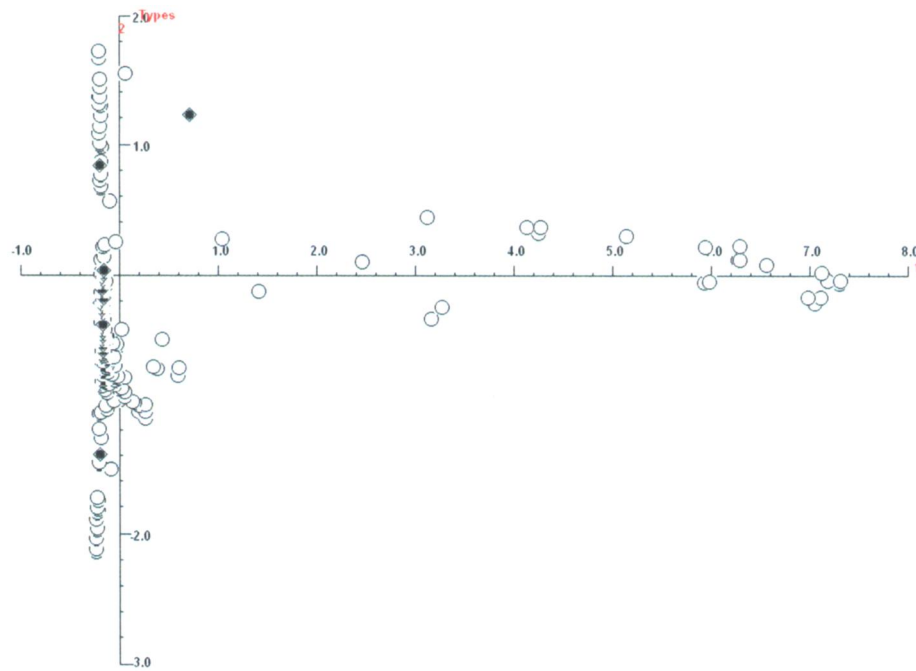


FIG. 17 Correspondence analysis of coin types found in 105 sixth- to seventh-century hoards of copper from the Balkans. Circles within diamonds indicate coins struck between 542 and 550.

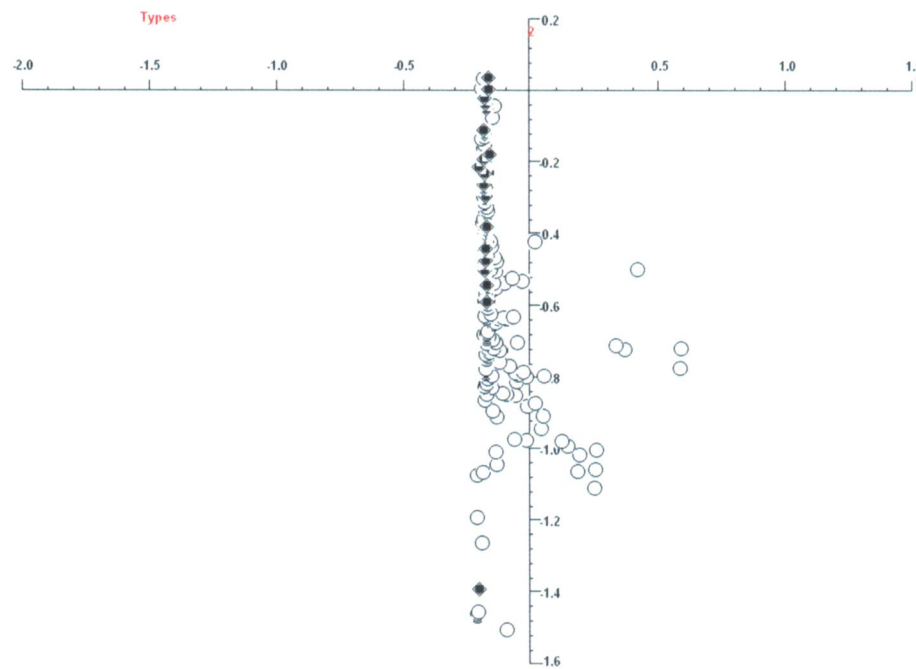


FIG. 18 Zoomed detail of the correspondence analysis of coin types found in 105 sixth- to seventh-century hoards of copper from the Balkans, showing the types associated with hoards of the second group. Circles with diamonds indicate coins struck between 542 and 550.

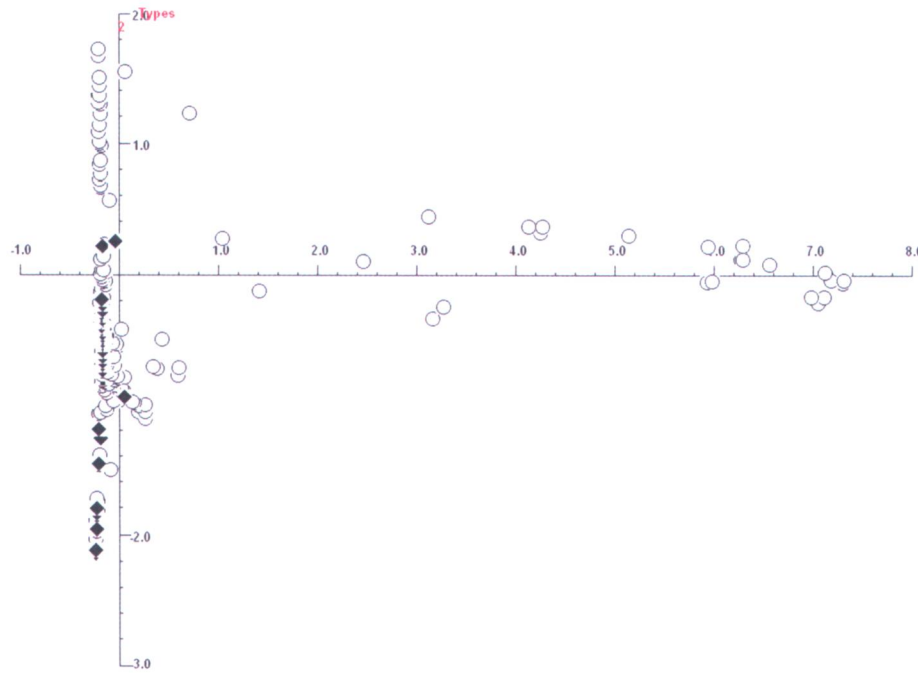


FIG. 19 Correspondence analysis of coin types found in 105 sixth- to seventh-century hoards of copper from the Balkans. Filled diamonds indicate coins struck between 550 and 565.

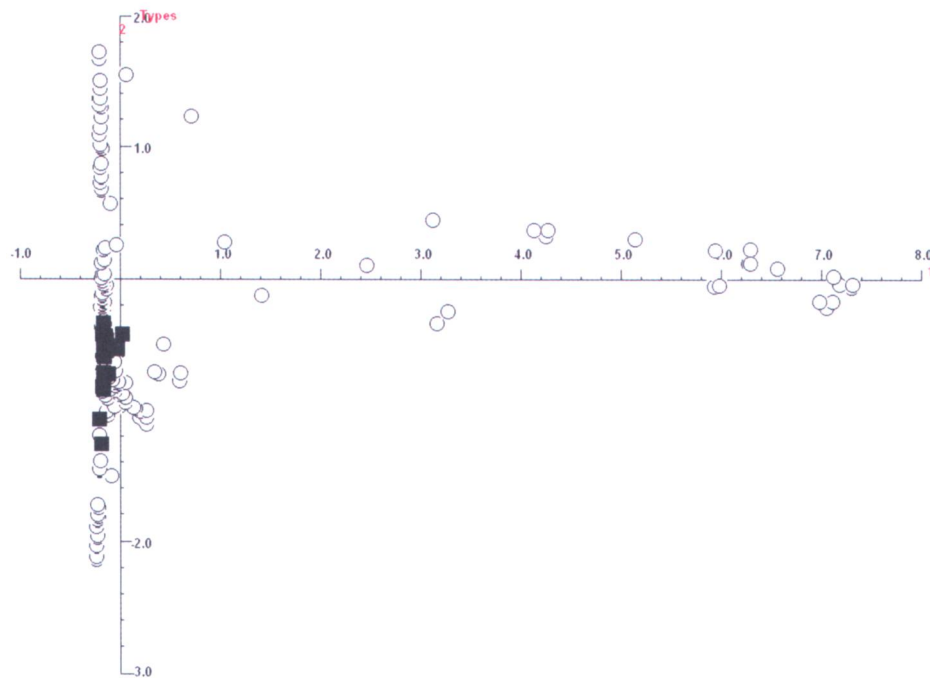


FIG. 20 Correspondence analysis of coin types found in 105 sixth- to seventh-century hoards of copper from the Balkans. Filled squares indicate coins struck between 565 and 570.

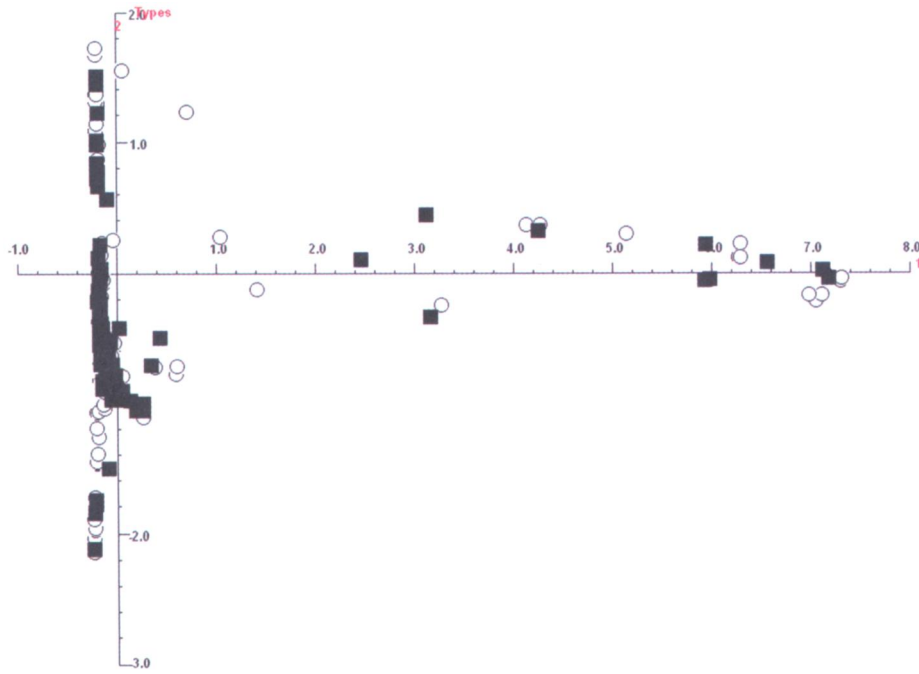


FIG. 21 Correspondence analysis of coin types found in 105 sixth- to seventh-century hoards of copper from the Balkans. Squares indicate coins struck in Constantinople.

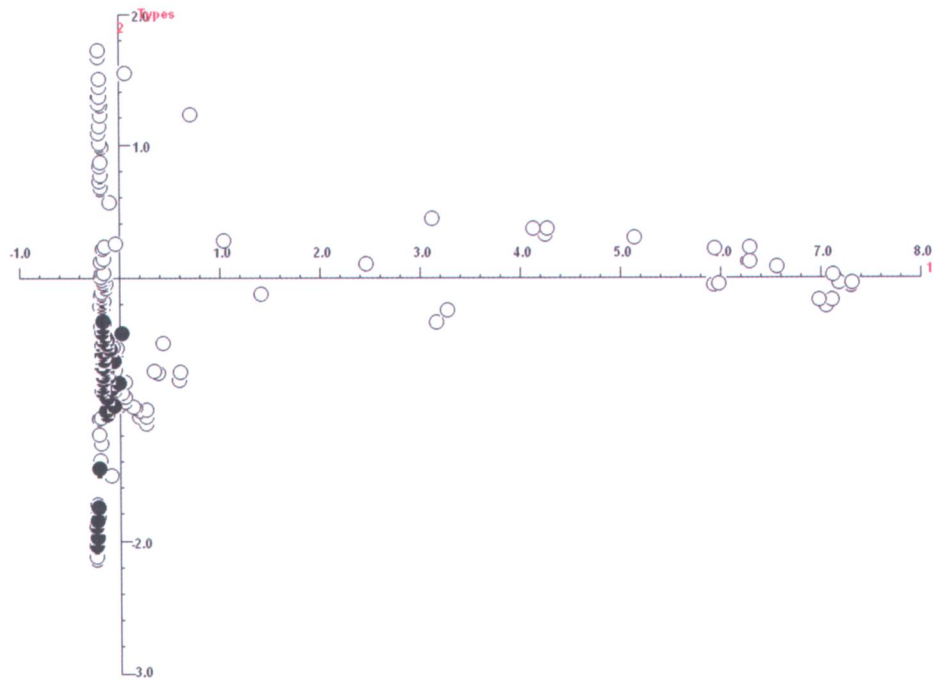


FIG. 22 Correspondence analysis of coin types found in 105 sixth- to seventh-century hoards of copper from the Balkans. Full circles indicate coins struck between 570 and 578.

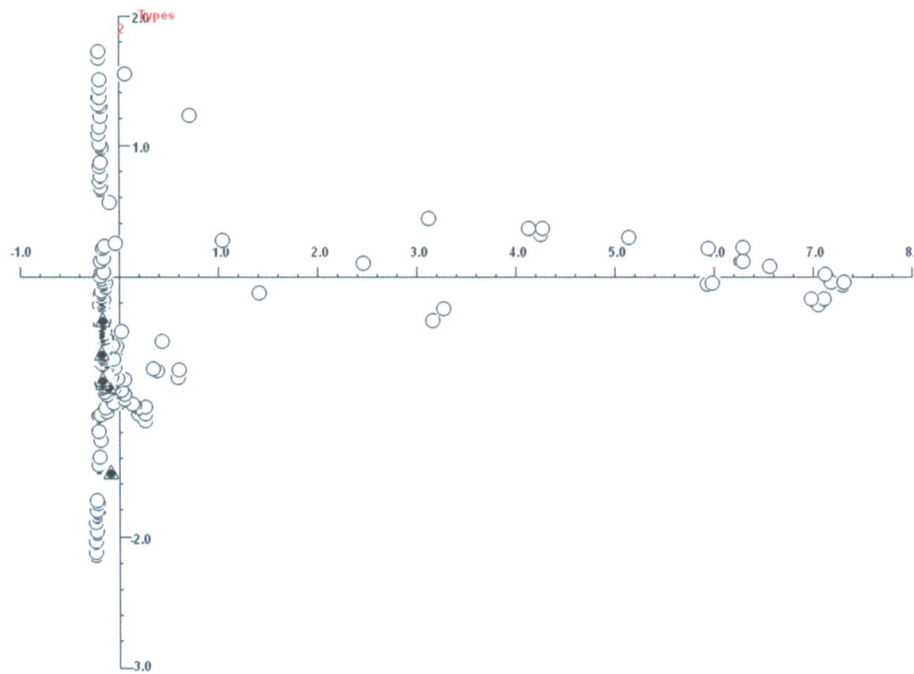


FIG. 23 Correspondence analysis of coin types found in 105 sixth- to seventh-century hoards of copper from the Balkans. Dots within triangles indicate coins struck between 578 and 580.

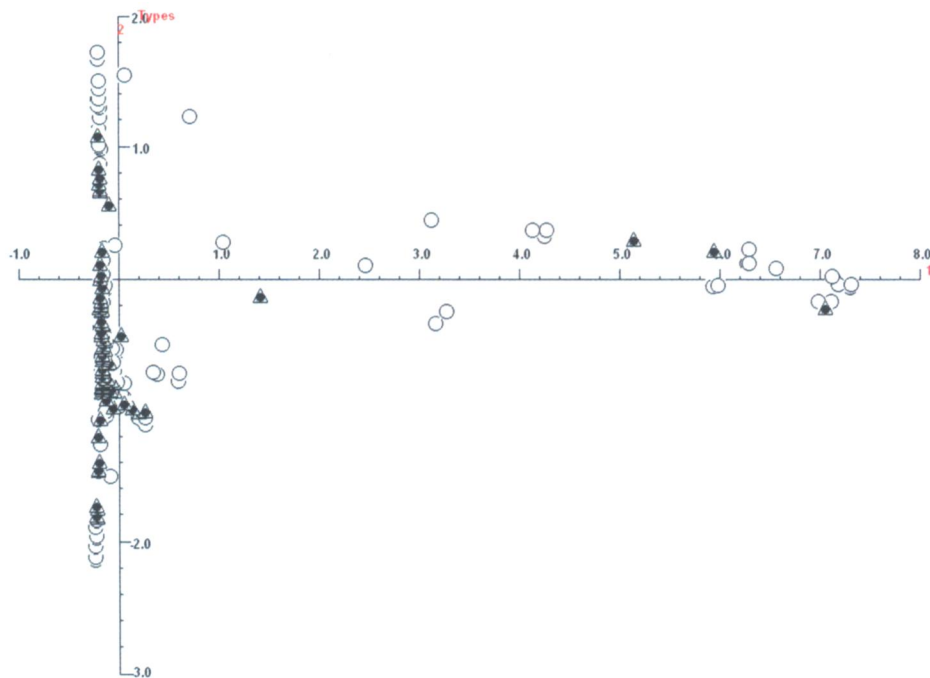


FIG. 24 Correspondence analysis of coin types found in 105 sixth- to seventh-century hoards of copper from the Balkans. Dots within triangles indicate 20-nummia pieces.

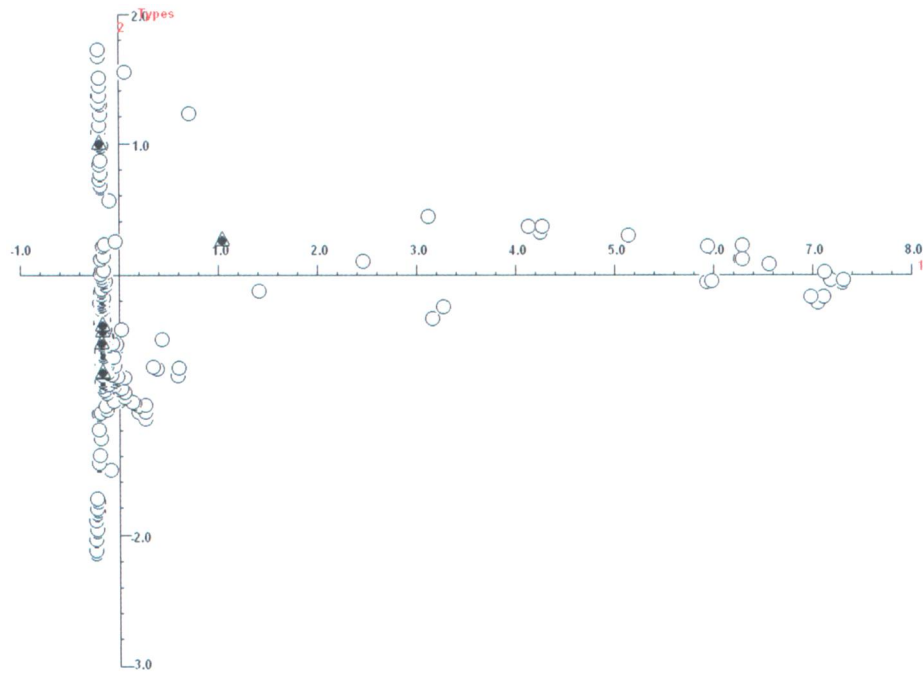


FIG. 25 Correspondence analysis of coin types found in 105 sixth- to seventh-century hoards of copper from the Balkans. Dots within triangles indicate 5-nummia pieces.

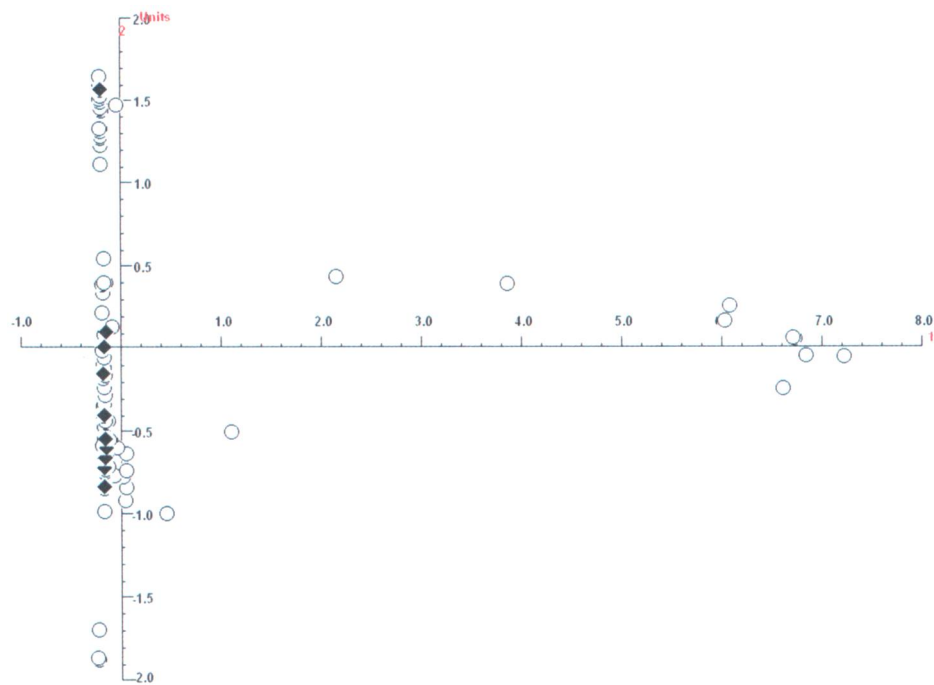


FIG. 26 Correspondence analysis of 105 sixth- to seventh-century hoards of copper from the Balkans. Diamonds indicate hoards containing ancient coins.

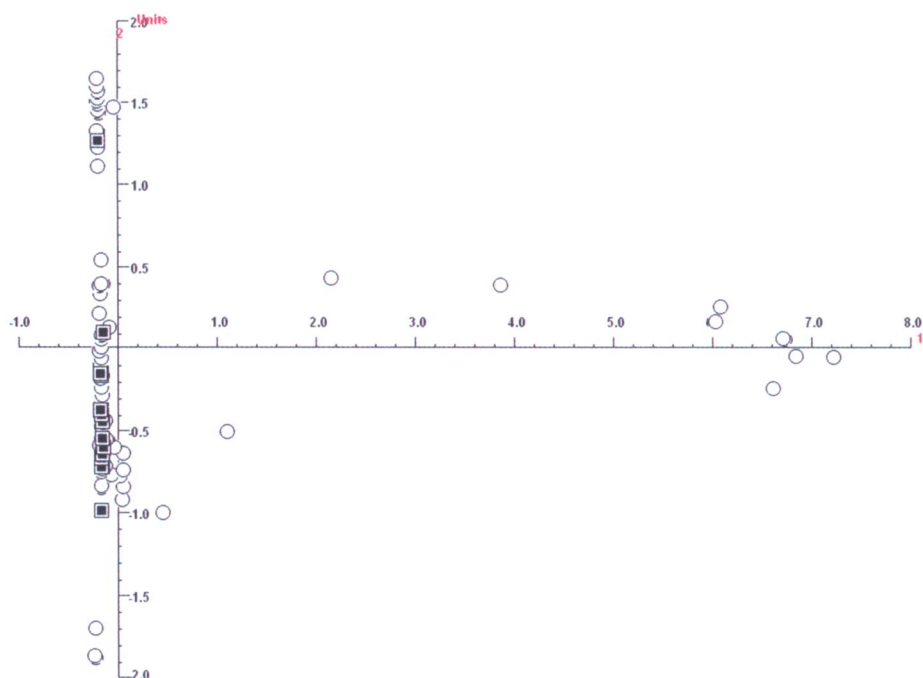


FIG. 27 Correspondence analysis of 105 sixth- to seventh-century hoards of copper from the Balkans. Squares indicate hoards containing minimi.

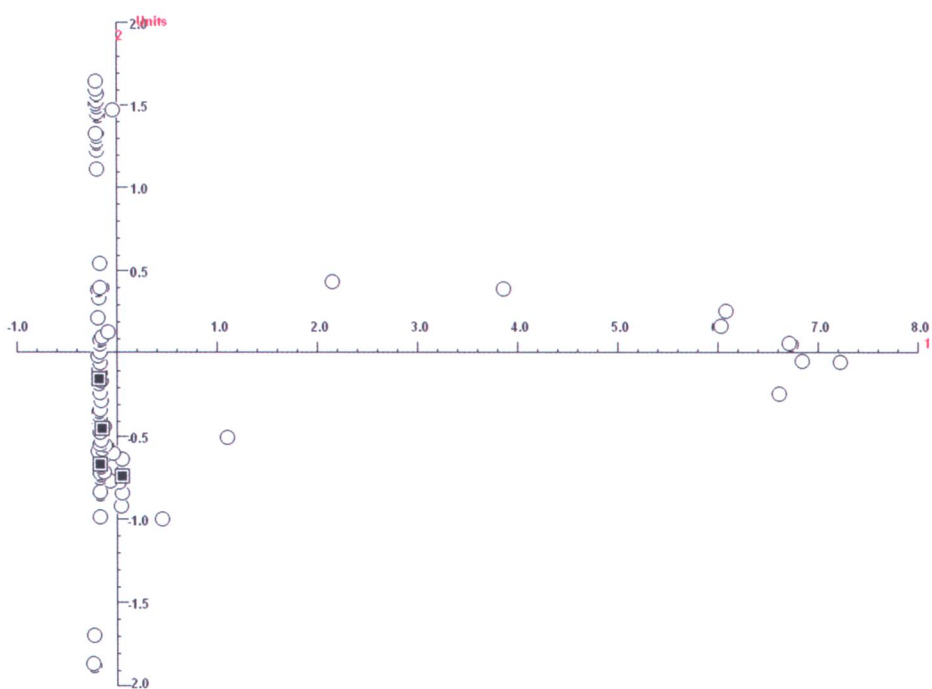


FIG. 28 Correspondence analysis of 105 sixth- to seventh-century hoards of copper from the Balkans. Squares indicate hoards containing dress accessories.

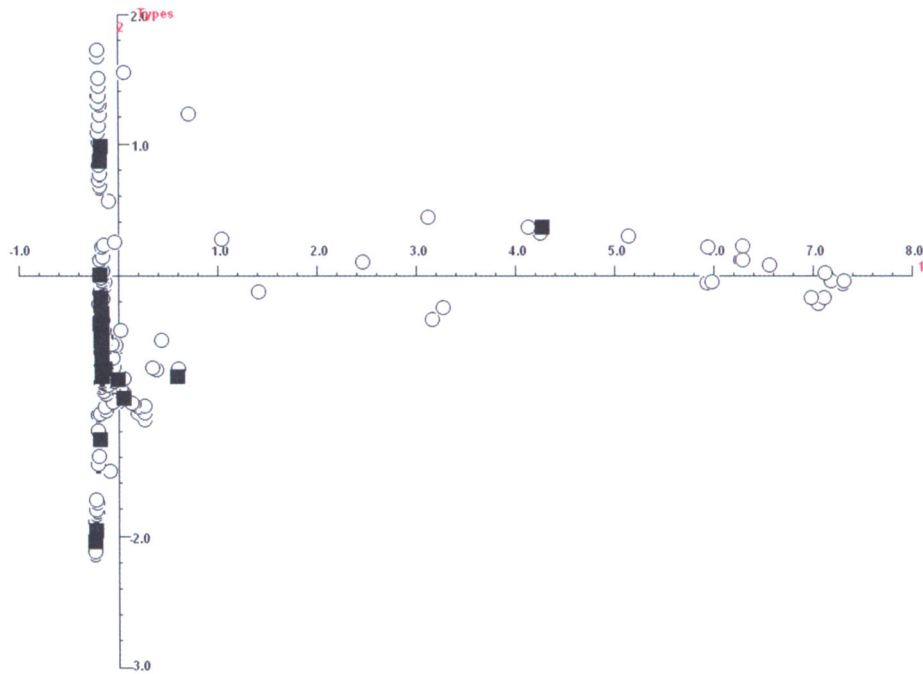


FIG. 29 Correspondence analysis of coin types found in 105 sixth- to seventh-century hoards of copper from the Balkans. Squares indicate coins struck in Antioch.

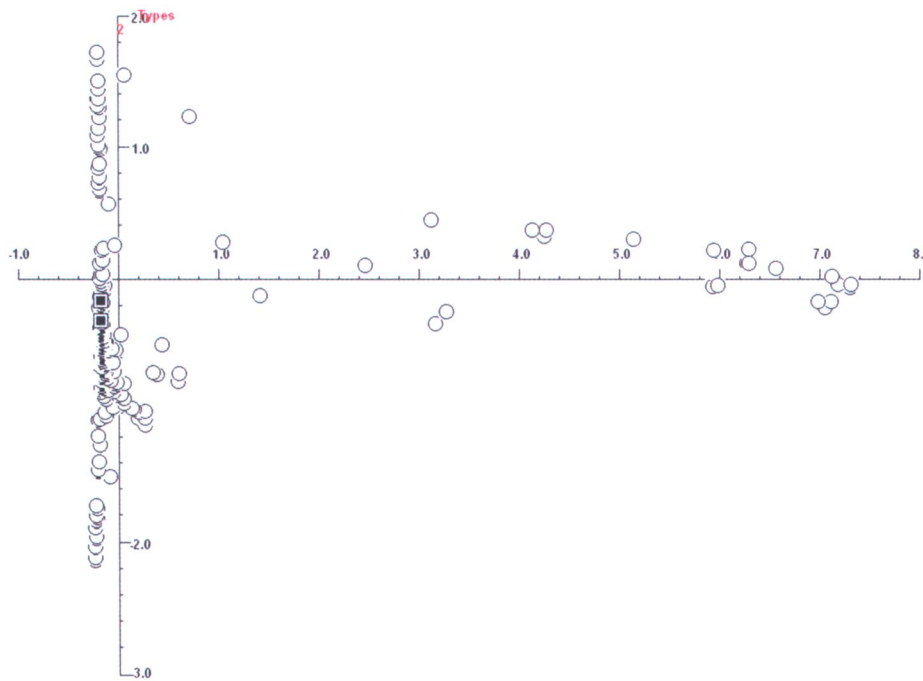


FIG. 30 Correspondence analysis of coin types found in 105 sixth- to seventh-century hoards of copper from the Balkans. Squares indicate coins struck in Carthage.

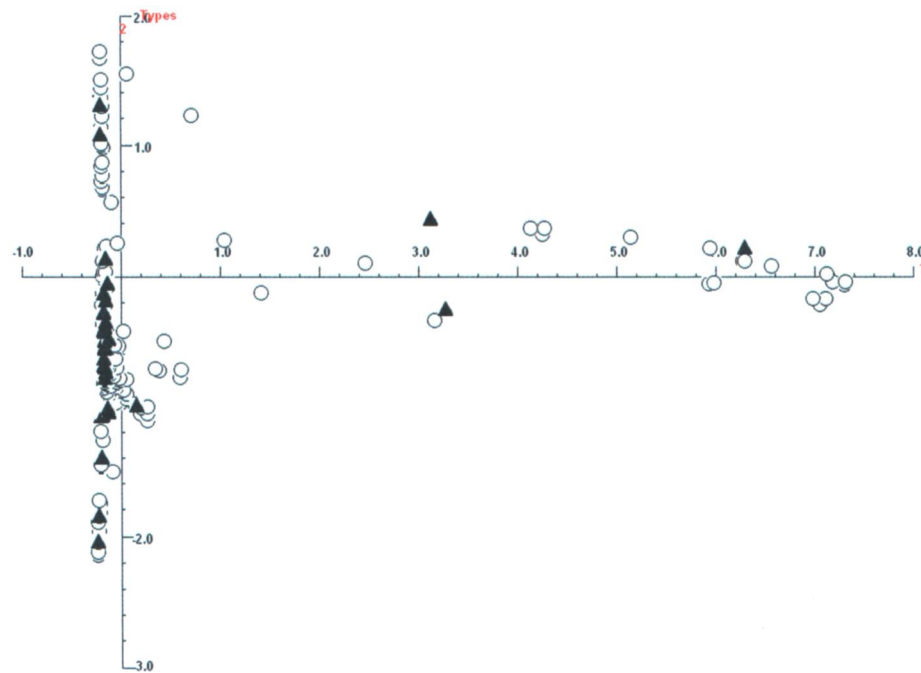


FIG. 31 Correspondence analysis of coin types found in 105 sixth- to seventh-century hoards of copper from the Balkans. Triangles indicate coins struck in Kyzikos.

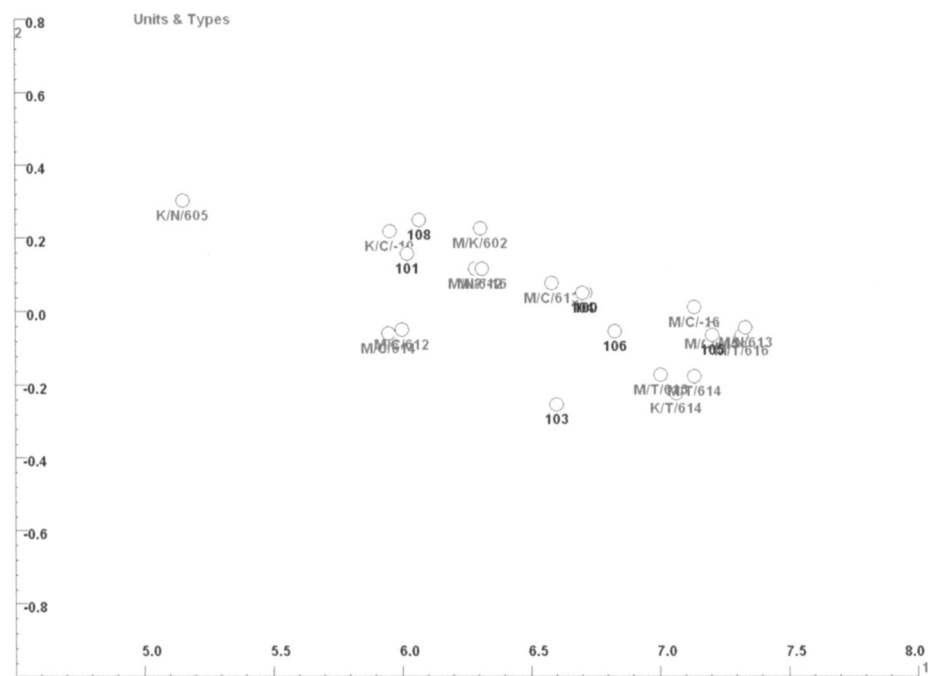


FIG. 32 Detail of the correspondence analysis of 105 sixth- to seventh-century hoards of copper found in the Balkans, showing hoards of the third group, with associated coin types. Hoard numbers refer to the list in Appendix 4. For mint and denomination abbreviations, see Fig. 10.

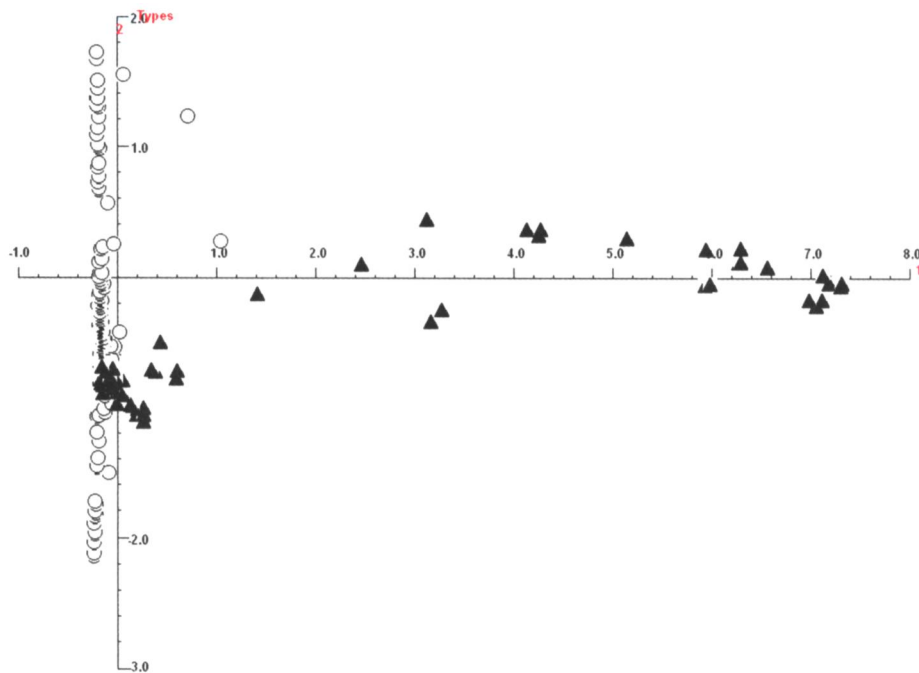


FIG. 33 Correspondence analysis of coin types found in 105 sixth- to seventh-century hoards of copper from the Balkans. Triangles indicate coins struck between 580 and 616.

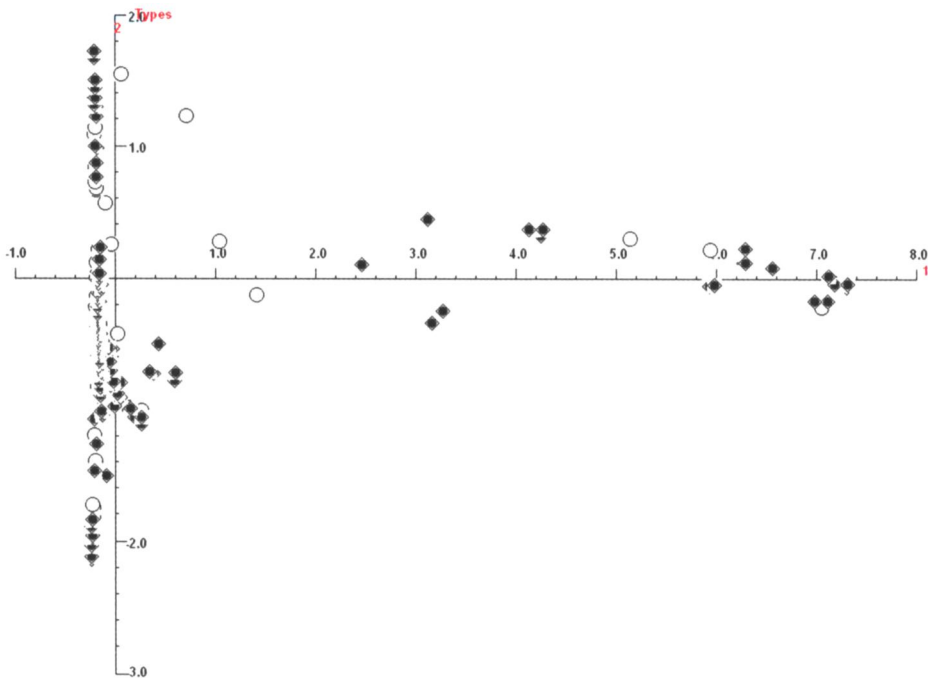


FIG. 34 Correspondence analysis of coin types found in 105 sixth- to seventh-century hoards of copper from the Balkans. Dots within diamonds indicate 40-nummia pieces.

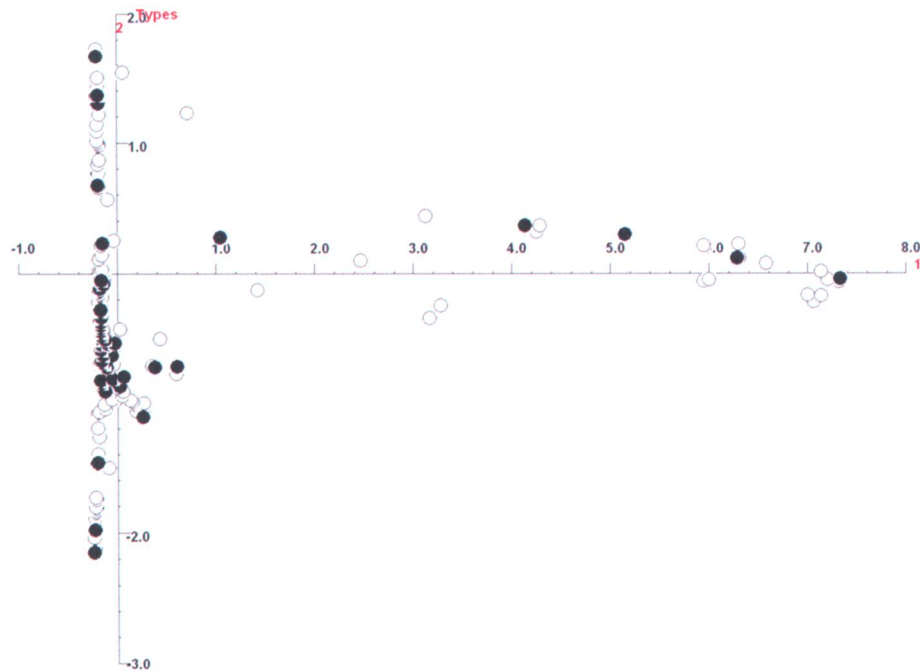


FIG. 35 Correspondence analysis of coin types found in 105 sixth- to seventh-century hoards of copper from the Balkans. Full circles indicate coins struck in Nicomedia.

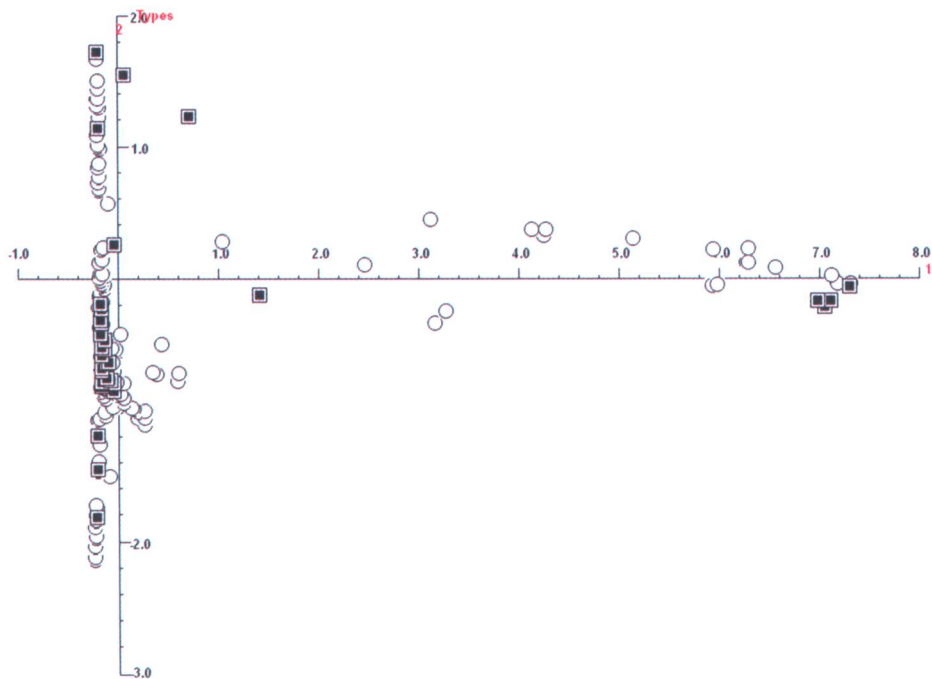


FIG. 36 Correspondence analysis of coin types found in 105 sixth- to seventh-century hoards of copper from the Balkans. Squares indicate coins struck in Thessalonica.

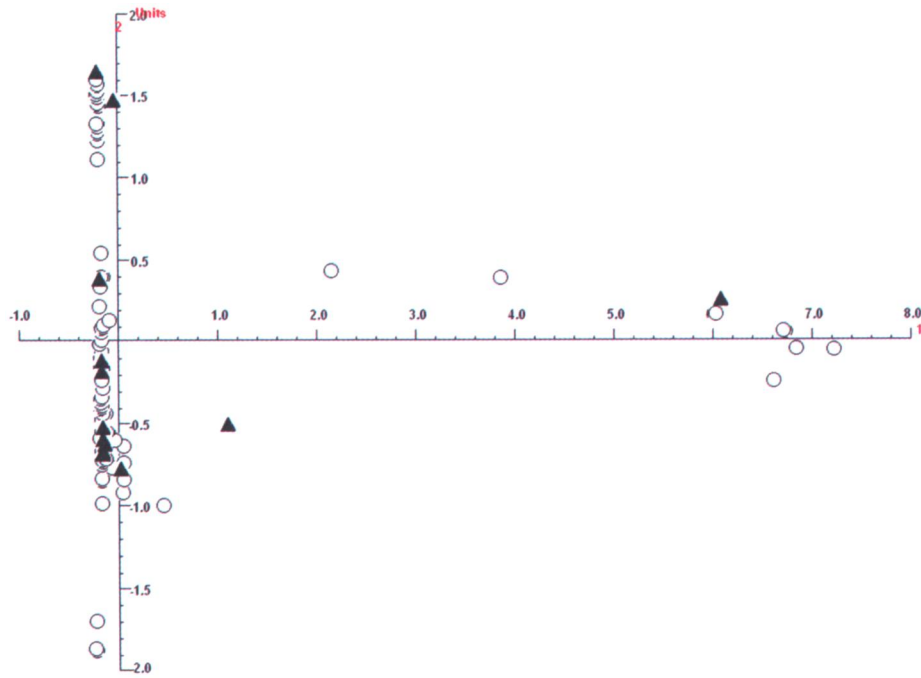


FIG. 37 Correspondence analysis of 105 sixth- to seventh-century hoards of copper from the Balkans. Triangles indicate hoards found in Macedonia.

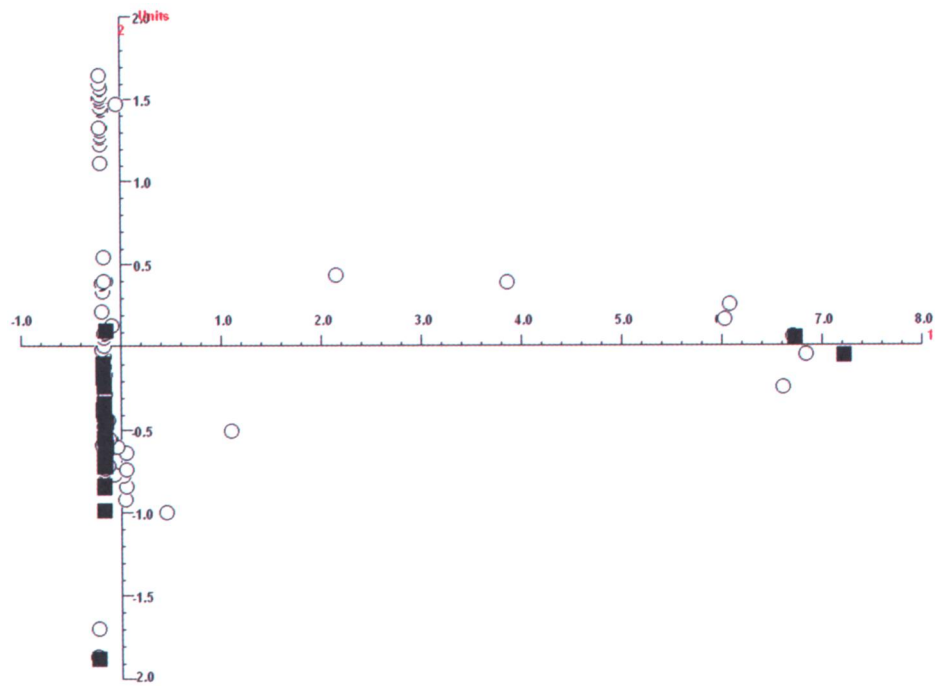


FIG. 38 Correspondence analysis of 105 sixth- to seventh-century hoards of copper from the Balkans. Squares indicate hoards found in Dacia Mediterranea.

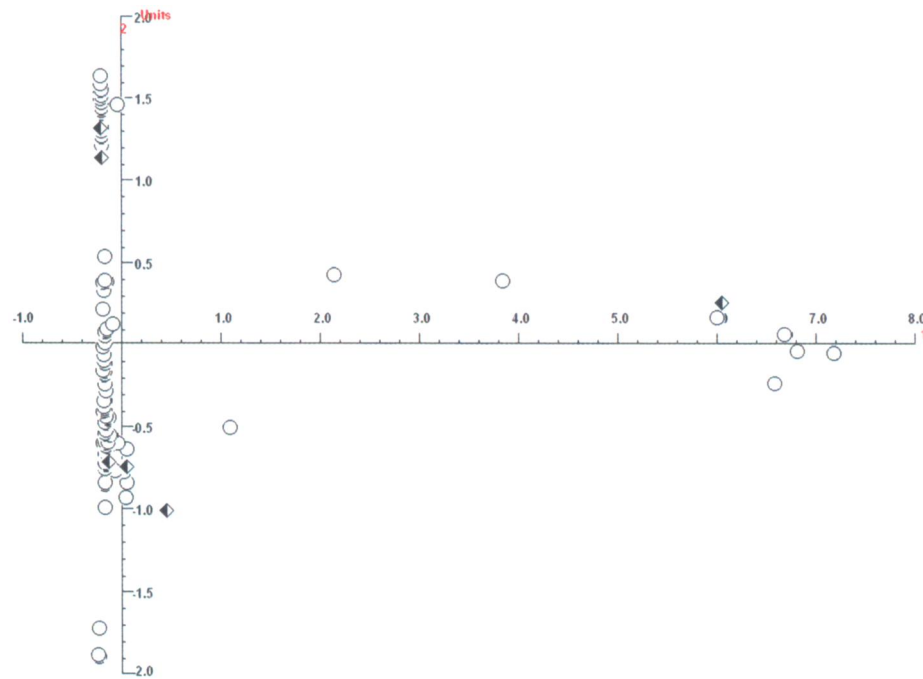


FIG. 39 Correspondence analysis of 105 sixth- to seventh-century hoards of copper from the Balkans. Half-filled diamonds indicate hoards found in *barbaricum*

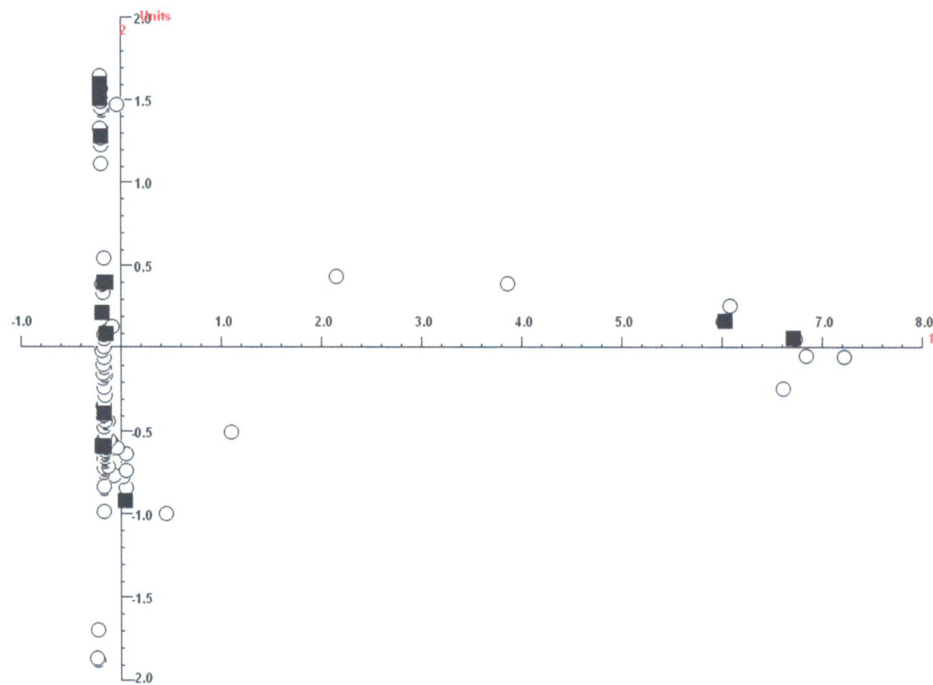


FIG. 40 Correspondence analysis of 105 sixth- to seventh-century hoards of copper from the Balkans. Squares indicate hoards found in Achaia.

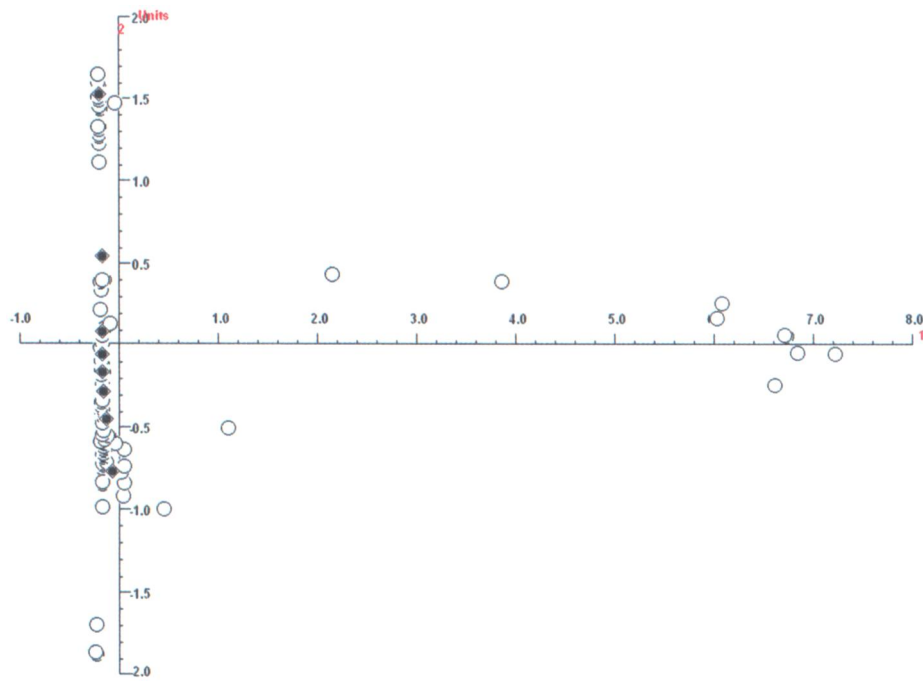


FIG. 41 Correspondence analysis of 105 sixth- to seventh-century hoards of copper from the Balkans. Dots in diamonds indicate hoards found in Rhodope and Thrace.

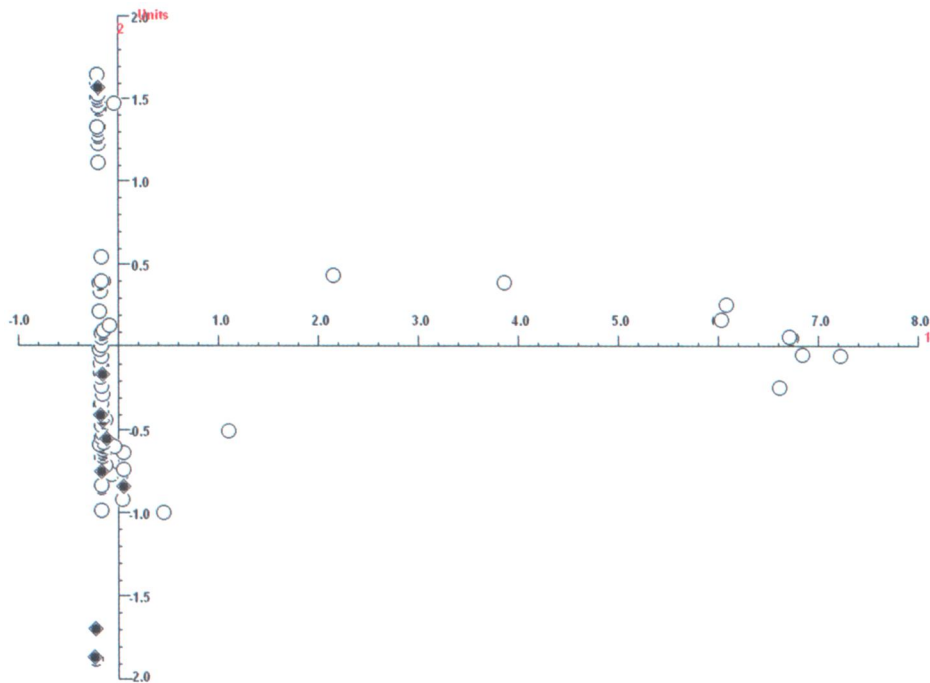


FIG. 42 Correspondence analysis of 105 sixth- to seventh-century hoards of copper from the Balkans. Dots in diamonds indicate hoards found in Dacia Ripensis.

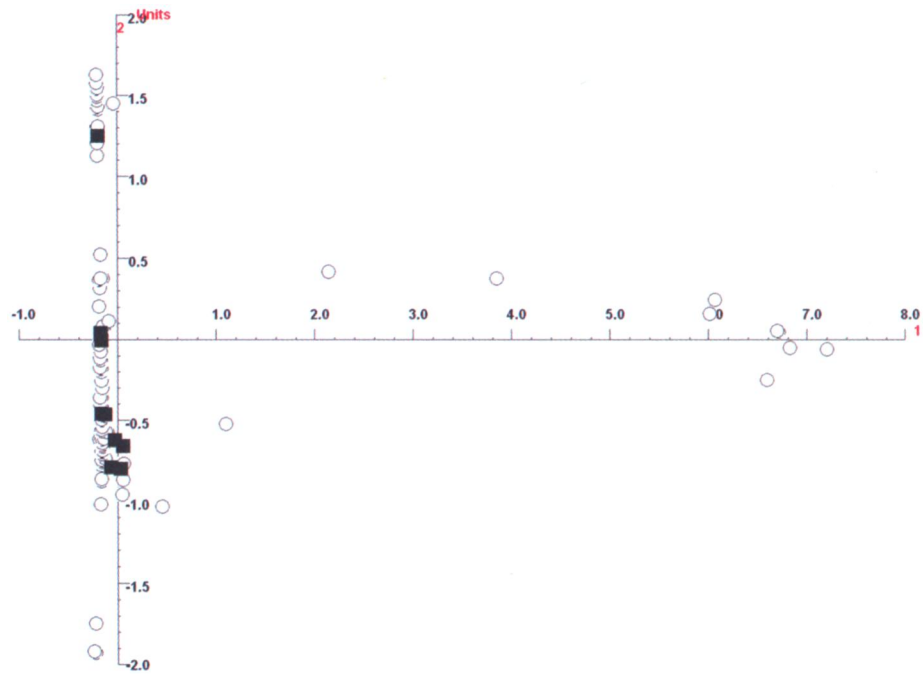


FIG. 43 Correspondence analysis of 105 sixth- to seventh-century hoards of copper from the Balkans. Squares indicate hoards found in Scythia Minor.

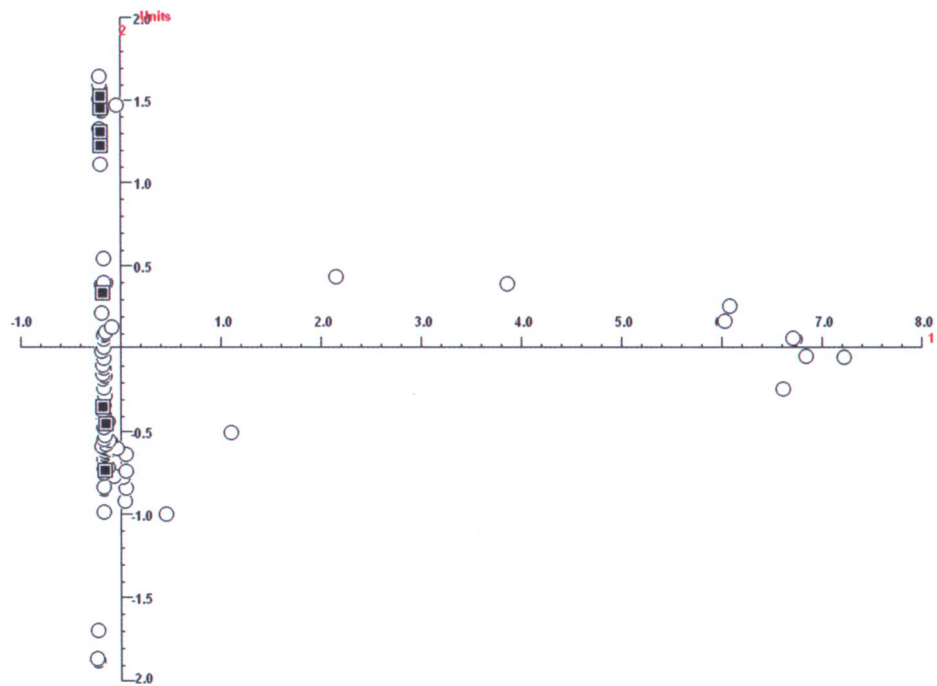


FIG. 44 Correspondence analysis of 105 sixth- to seventh-century hoards of copper from the Balkans. Squares indicate hoards found in Moesia Inferior.

from the first group, while most of those of the third period appear in hoards of the second group. Almost all coins struck during the fourth, fifth, sixth, and seventh periods of monetary reform (550–580) are also from the second group, in which the largest number of coins is that from the sixth period (with almost equal quantities of folles and half-folles). Whereas in the second group most coins from the eighth period (580–616) are either folles or half-folles, the third group is dominated by folles, the only such denominations in the group (which has no folles from the first, fourth, fifth, or sixth periods). There are in fact more folles than half-folles in the first and third groups. Most 16-nummia pieces are from the first group, while the majority of the $\frac{1}{4}$ and $\frac{1}{8}$ folles are from the second group. This particular situation can be explained by the conditions of the early Byzantine monetary economy. Early in the sixth century there was an obvious need for higher denominations after the monetary collapse in the second half of the fifth century. The older currency, minimi in particular, but also other denominations of the late Roman coinage, were still available to meet the demand for small change. The monetary system matured during the reign of Justinian when it displayed the widest range of denominations (and mints), including the peculiar coinage of Thessalonike. As we have seen, the largest concentration of small denominations can be found in the second group, in which the presence of coins struck for Justinian and Justin II is substantial. The third group corresponds to the breakdown of the Anastasian denominational system, which explains the overwhelming presence of folles.¹³³

While coins struck in the mints of Constantinople, Nicomedia, and Kyzikos appear in all three groups, most specimens from the mints of Thessalonike, Antioch, and Carthage are from the second group. Most hoards with ancient coins and minimi and all hoards with dress accessories are also from the second

group. However, the number of minimi decreases in hoards closed after 565, while no hoards of minimi-only can be found after ca. 540. The second group is the only one represented in all Roman provinces in the Balkans, no doubt because of the large number of hoards involved. The first group does not appear in Achaia, and is represented by a single hoard in Rhodope, Thrace, Dacia Ripensis, and Scythia Minor. By contrast, the third group is not represented in any one of those four provinces.

The largest number of coins for any period of monetary reform is that from the first group, with coins dated between 498 and 538 (fig. 45), which can be partly explained by their long life in circulation. This is particularly true for the large-module pieces struck between 512 and 538. The majority of those coins are folles, and it is only natural that they were found in such large numbers in this group, for the value of the follis in relation to the solidus was stable for forty years after the initial reform of 498 and on the rise thereafter until 550. However, the heaviest copper coins in the entire sixth century were the folles struck between 538 and 542. It is therefore remarkable that only a few of them turned up in hoards of the first group. In some of them, the heavy and valuable folles struck between 538 and 542 represent a fifth (Gotse Delchev, Garmen, Varna) or a third of all folles (Godiachevo). In most other collections, the heavy folles are numerically insignificant.¹³⁴ The number of such coins is comparatively larger in hoards of the second group, albeit smaller than that of coins of other periods of monetary reform (fig. 46). We are inclined to ascribe this later infusion of heavy Justinianic coins to the increased military activity in the northern Balkans in the last quarter of the sixth century. The most dramatic change in the second group, however, is the sudden increase in the number of half-folles, which is even larger than that of folles for the periods 565–570, 578–580, and 580–616. To a large extent this important change is caused by the heavy output of the Thessalonican mint, which specialized in the production of half-folles after abandoning its idiosyncratic denominational system in the late years of Justinian's reign. Moreover, the abundance of half-folles from Thessalonike should be related to the

133 According to *The Miracles of St. Artemios: A Collection of Miracle Stories by an Anonymous Author of Seventh-Century Byzantium*, ed. V. S. Crisafulli and J. W. Nesbitt (Leiden and New York, 1997), 129, the smallest denomination available in Constantinople in 640 was the half-follis. However, the Saraçhane and Kalenderhane excavations in Istanbul have produced many decanummia dated to the second half of the seventh century. See M. F. Hendy, "The Coins," in *Excavations at Saraçhane in Istanbul*, ed. R. M. Harrison et al., vol. 1 (Princeton, 1986), 313–23; Hendy, "Roman, Byzantine and Latin Coins" (n. 110 above), 222–35 and 275.

134 Only one specimen in the Constanța hoard (one percent of all folles), four in the Blagoevgrad hoard (9.09 percent), five in the Skačinci hoard (5.88 percent).

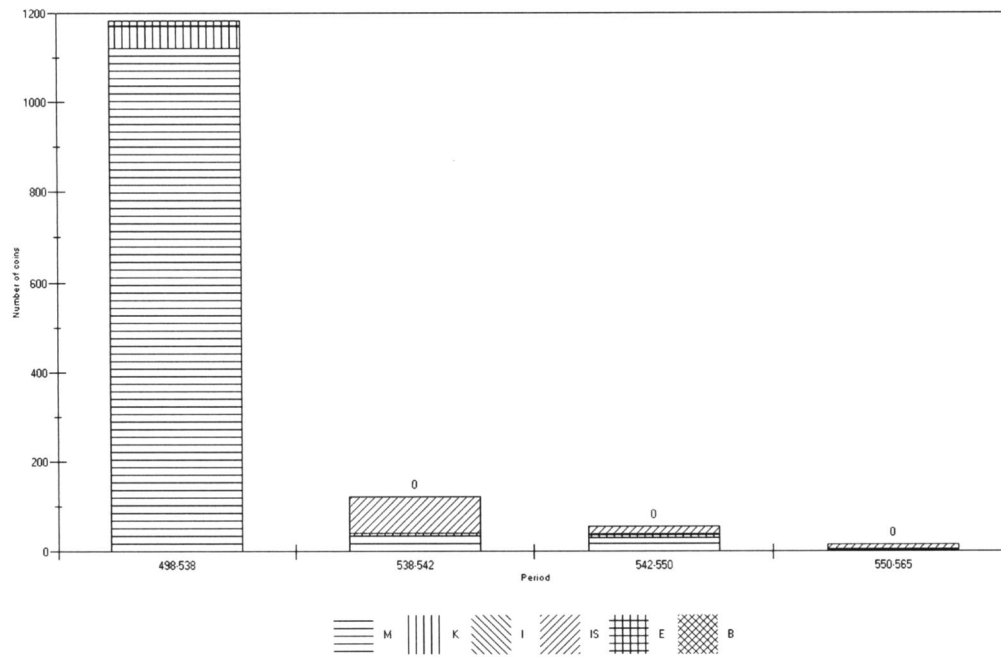


FIG. 45 The distribution of denominations by monetary reform periods within the first group of sixth-century hoards of copper found in the Balkans (nos. 1–25).

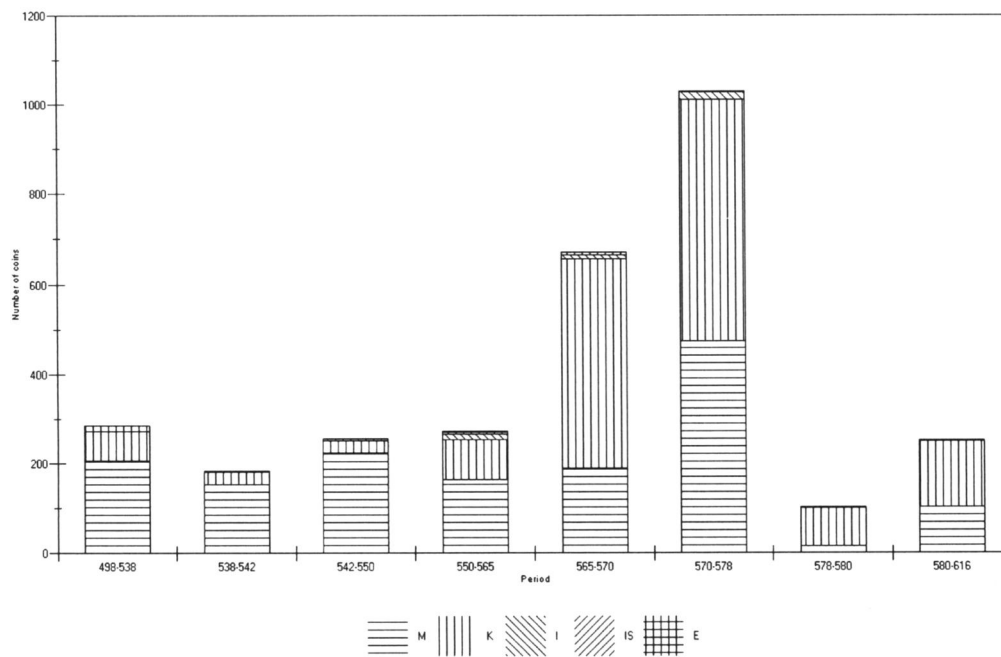


FIG. 46 The distribution of denominations by monetary reform periods within the second group of sixth-century hoards of copper found in the Balkans (nos. 26–98).

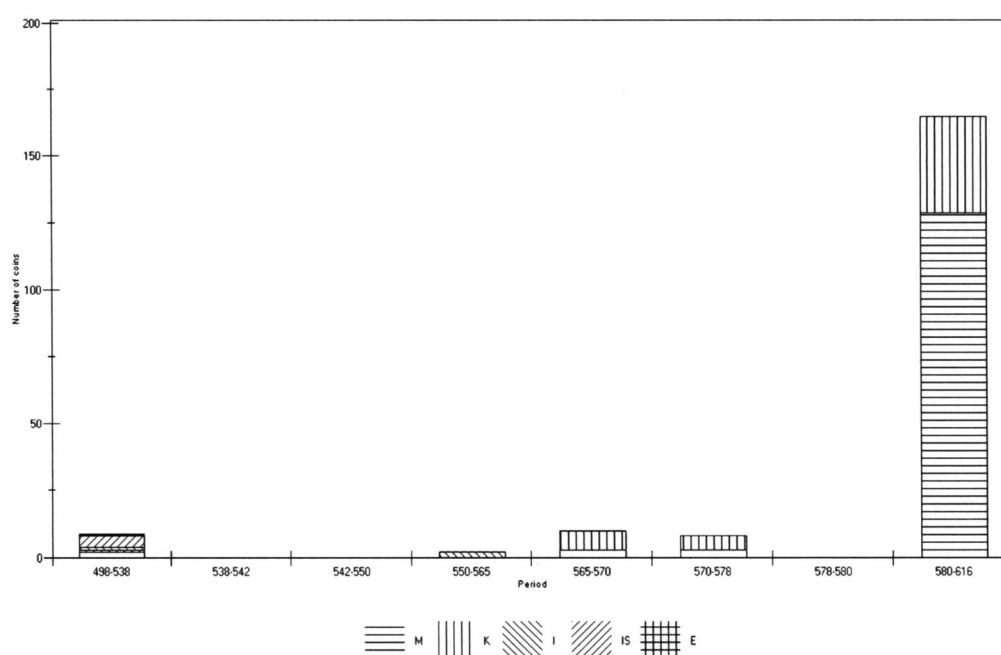


FIG. 47 The distribution of denominations by monetary reform periods within the third group of seventh-century hoards of copper found in the Balkans (nos. 99–108).

intense military activity in the Balkans following the rise of the Avar khaganate.

Half-folles are also more numerous than folles of 578–580 and 580–616 in the third group (fig. 47). The most remarkable feature in this group is the virtual absence of folles for all but the last period of monetary reform. Unlike their counterparts in Syria and Palestine, the owners of hoards from the Balkans with the latest coins struck after 601 do not seem to have had access to, or interest in, the coins of the early sixth century.

Conclusion

A comparison between hoards and single finds from the Balkans (and even more so for finds from Syria and Palestine) shows that the percentage of folles is higher in hoards, while there are more $\frac{1}{4}$ and $\frac{1}{8}$ folles among single finds. However, hoard owners were not necessarily after the largest and heaviest coins. The “good” and heavy coins struck for Emperor Justinian between 538 and 542 are a case in point.¹³⁵ Equally relevant in this

respect are the large folles struck in 579 in Constantinople, Nicomedia, and Kyzikos for Tiberius II, in an attempt to revive the Justinianic standard. Such coins are surprisingly rare in hoards, but not among single finds.¹³⁶ One would have expected such unusually large specimens to be immediately withdrawn from circulation and hoarded, but the evidence shows that that was not the case. Moreover, we need to look at the heavy presence of half-folles from Thessalonike, which, in many hoards, are more numerous than folles, as well as to the presence of $\frac{1}{4}$ and $\frac{1}{8}$ folles at a time when they were issued in abundance. It must be concluded, therefore, that selectivity and availability are two concepts with similar weight in the process of hoard formation. Sometimes it boils down to the circumstances in which the hoard was assembled (emergency or savings) or the still uncertain ratio between copper and gold. All things being equal, it appears that the low value of copper hoards (as compared to gold) made owners less interested in what they were assembling. We should be

135 Out of over 2,000 single finds so far known from the province of Scythia, ten percent are issues dated between 538 and 542. This is a

figure rarely found in relation to hoards. See Gândilă, “Some Aspects of the Monetary Circulation” (n. 121 above), 319–21, table 1.

136 Ibid., 320, table 1.

cautious when granting them more agency than the mere interest to amass a sum of money with a certain face value. Leaving aside the hoards with gold coins or precious jewelry, most early Byzantine collections of copper from the Balkans are modest, often fewer than one hundred folles. A cursory review of the fragmentary, yet relevant, evidence of prices and wages in the sixth century leads to the conclusion that those were not great fortunes by any stretch of the imagination.¹³⁷

In Greece, responsible for the low value of such accumulations of coins is primarily the presence of *minimi*, which were apparently withdrawn from circulation in larger numbers than the heavy folles of the first few decades of the sixth century. This may indicate that those collections of coins were put together by people with access to the capillaries of the urban economy dominated by *minimi* or even monetarily recycled ancient coins circulating on the basis of their weight, and not face value. It remains unclear whether those small savings based on the smallest denominations available on the market are to be interpreted as ephemeral accumulations of small change by active participants in monetary exchanges on the market, or by poor people who could simply not afford much on a daily basis. Nor can a choice between those two possibilities be made on the basis of the fact that 16 out of 35 hoards of *minimi* from Greece have been found in urban centers such as Corinth. Most of them were concealed before the end of Justinian's reign. Out of twenty-eight hoards found in Greece with the latest coins struck between 491 and 565, twenty-two are of *minimi*. The situation in the northern Balkans is entirely different.

Out of sixteen hoards with latest coins struck before 565, which were found within a band of 100 km to the north or to the south from the river Danube, only five contain *minimi*, while half of them consist primarily of folles.¹³⁸ This nicely dovetails with the contrast between hoards in Greece concealed mostly

in amphitheaters, "shops," baths, or ancient tombs, and hoards in the northern and central Balkans hidden mostly by fort walls and especially in basilicas. There is therefore clear evidence of regional patterns of hoarding behavior during specific periods. Moreover, certain types of coins consistently appear together, as demonstrated by the examination of hoards from the second group with coins minted in Antioch, Kyzikos, and Carthage. Nonetheless, such coins appear in almost as many hoards in Greece (18) as in the Danube region (23). Most collections in the latter region were concealed after 570 in ceramic containers or, as in the case of the Horgești hoard, in metal vessels produced without doubt elsewhere in the Empire. By contrast, no hoards of copper are so far known from Greece with the latest coins struck between 585 and 605. For two decades, hoarding seems to have completely ceased in Greece, after two other decades (565–585) in which it had been quite common.¹³⁹ That this is no accident results from the scarcity of single finds of coins struck between 585 and 605.¹⁴⁰ For example, the number of coins drops abruptly in Athens in the 580s and coins struck for Maurice after 585 are rare.¹⁴¹ There are good reasons to believe that fewer coins were put into circulation in Greece between 585 and 602. By contrast, the vast majority of coins in collections closed between 565 and 585 are half-folles struck in Thessalonike for Justin II, which have been found in large numbers not only

139 This applies only to hoards of copper, for no fewer than four hoards of gold are known with the latest coins struck between 582 and 602 (Zogeria, Apidea, Eleusis 1885, and Patras 1986).

140 Only three such coins are known from Andikyra (Boeotia), and only one from Kephelos, in the Ambrakian Bay. See I. Tsourti, "Αντίκυρα Βοιωτίας: Νομισματική μαρτύρια," in *Θωράκιον* (n. 102 above), 126–27; Ch. Barla, "Ανασκαφή Κεφάλου Αμβρακικού," *Πρακτ. Αρχ. Έτ.* 125 (1970): 96.

141 Excavations in the Athenian Agora produced only 25 coins struck for Maurice, only 8 of which could be dated with any degree of certainty after 585. See M. Thompson, *The Athenian Agora: Results of Excavations Conducted by the American School of Classical Studies at Athens*, vol. 2 (Princeton, 1954), 69 and 104. According to G. D. R. Sanders, "Corinth," in *The Economic History of Byzantium From the Seventh Through the Fifteenth Century*, ed. A. E. Laiou (Washington, DC, 2002), 649, in Corinth known so far are 279 coins struck for Justin II, 70 for Phocas, but only 55 for Maurice. R. H. Hohlfelder, *Kenchreai, Eastern Port of Corinth: Results of Investigations by the University of Chicago and Indiana University for the American School of Classical Studies in Athens*, vol. 3, *The Coins* (Leiden, 1978) lists no coins struck between 582 and 604.

137 Morisson, "Monnaie et prix" (n. 115 above), 239–60.

138 Hoards with *minimi* in the Danube region: Gamzigrad, Plumbuita, Constanța, and two hoards found in Histria. Hoards containing mostly folles: Dobra, Malo Golubinje, Prahovo, Osikovo, Teteven, Riakhovets, Radingrad, and Cudalbi. The largest pre-565 hoard with *minimi* known from Greece is Patras 1938, with 11,984 coins (including some ⅓ folles and a few ancient coins, which may have been circulated as *minimi*). The largest contemporary hoard from the Danube region is Prahovo, with 579 folles.

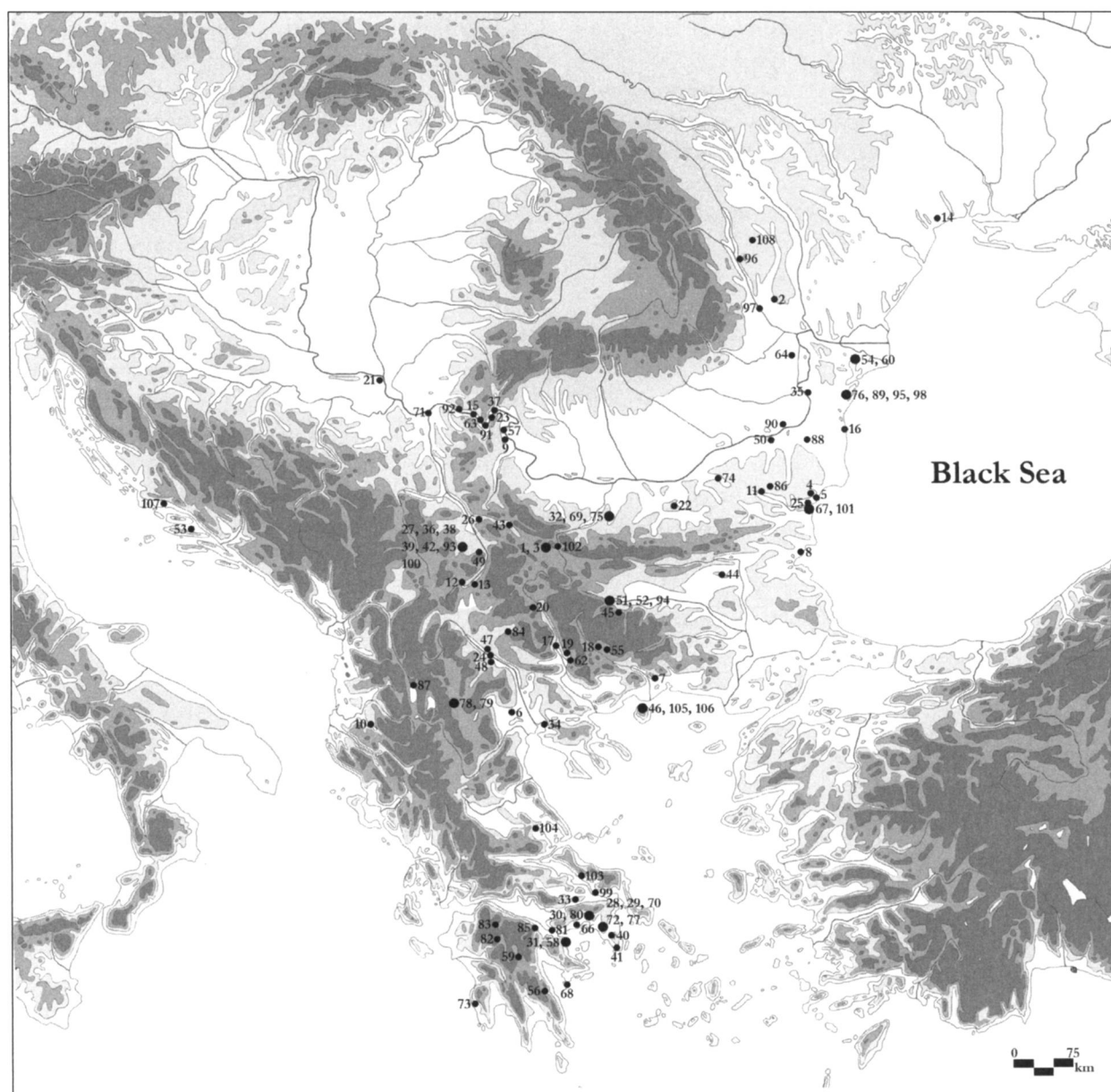


FIG. 48 The distribution in Southeastern Europe of the sixth- and seventh-century hoards of copper used for analysis. Lowest contour 200 m, thereafter 500 m and over 1000 m. Smaller circles for one, larger circles for more than two hoards. Numbers refer to the list in Appendix 4.

in hoards, but also in urban sites, such as Athens and Corinth.¹⁴²

What caused the abundance in Greece of coins struck between 565 and 585, particularly those minted in Thessalonike, and the absence of those struck between 585 and 605? It has been suggested that responsible for the distribution of copper coins of Thessalonike in Greece was the movement of troops, the “young elite soldiers of the army” and “those who serve in the great praetorium,” who at the time of the 586 attack on Thessalonike by Sclavenes were in the “land of the Hellenes” under the command of the city prefect.¹⁴³ Similarly, the sudden hoarding surge in the 590s in the northern parts of the Balkans has been associated with Emperor Maurice’s campaigns against the Sclavenes and the Avars, which started in 593.¹⁴⁴ Throughout the second half of the sixth century, the troops were most likely paid in gold, at least for their *donativa*. Nine out of fourteen hoards of gold from the central and northern Balkans with latest coins struck between 565 and

585 have no more than ten coins.¹⁴⁵ Similarly, the presence of balances and weights—a specifically Balkan feature of the late-sixth-century hoarding behavior—points unmistakably to payments of *donativa* in gold. Soldiers would then have taken the gold coins to the imperial *campstor* (money changer) attached to their unit in order to get their small change in copper coins.¹⁴⁶ This scenario is substantiated by a funerary inscription found in Makriköy (now in Bakırköy, ancient Hebdomon) in the late nineteenth century. The inscription mentions a certain John, son of Hyakinthos, who “followed the expedition” as imperial *campstor* and died probably while on campaign somewhere in the Balkans on 21 August 544.¹⁴⁷ The *campstor* must have carried large amounts of copper coins with him, which he may have obtained directly from the mint.¹⁴⁸ However, it is unlikely that he had anything but large denominations—folles and half-folles, which explains the large number of such denominations from hoards of the second group found in the central and northern Balkans. The soldiers then brought the large copper denominations to the market for procuring goods necessary for their daily subsistence. It is there that they may have first encountered smaller denominations, especially ½ folles and minimi. This explains the massive, if not

142 D. M. Metcalf, “Mint-Activity in Byzantine Thessaloniki,” in *Το νόμισμα στο μακεδονικό χώρο: Πρακτικά Β' επιστημονικής συνάντησης: Νομισματοκοπεία, κυκλοφορία, εικονογραφία, ιστορία, αρχαίοι, βυζαντινοί και νεώτεροι χρόνοι*, ed. P. Adam-Veleni (Thessaloniki, 2000), 175–76. Among finds from the Athenian Agora, the Thessalonican half-folles struck for Justin II outnumber all other issues from that reign combined (Metcalf, “Slavonic Threat” [n. 25 above], 142). More sixth-century coins struck in Thessalonike have been found in Greece than in any other region of the Balkans.

143 *Miracles of St. Demetrius* 1.13.128, ed. P. Lemerle (Paris, 1979), 137. See Curta, *Edinburgh History* (n. 125 above), 86. For the 586 attack on Thessalonike, see J. C. Skedros, *Saint Demetrios of Thessaloniki: Civic Patron and Divine Protector, 4th–7th Centuries CE* (Harrisburg, 1999), 129; A. K. Iliadi, *Ta “θαύματα” του Αγίου Δημητρίου ως ιστορικές πηγές: Επιδρομές και Σλαβικές εποίκσεις εντεύθεν του Δουνάβειος* (Trikala, 2003), 57–60; Tibor Živković, *Forging Unity: The South Slavs Between East and West, 550–1150* (Belgrade, 2008), 20–21. “Those who serve in the great praetorium” were most likely the *scholae* of the city prefect. For the “young elite soldiers” as soldiers of the regular troops aged 18 to 40, see M. Pillon, “Armée et défense de l’Illyricum byzantin de Justinien à Héraclius (527–641): De la réorganisation justinienne l’émergence des ‘armées de cité,’” *Erytheia* 26 (2005): 7–85, esp. 57.

144 Popović, “La descente des Koutrigours” (n. 4 above), 623 and 629; V. Popović, “Aux origines de la slavisation des Balkans: la constitution des premières sklavines macédoniennes vers la fin du VI^e siècle,” *Comptes rendus de l’Académie des Inscriptions et Belles-Lettres* 8 (1980): 246; Curta, “Invasion or Inflation?” (n. 17 above), 108. For Maurice’s campaigns against the Sclavenes and the Avars, see Curta, *Making of the Slavs* (n. 81 above), 99–107.

145 Pinios, Pustogradsko (Stobi) 1932, Biala reka, Guberevac, Hinog, Resenov, Slava Rusă, Samarinovac, and Belovo. Under Tiberius II, the accessional donativum was 9 solidi and the quinquennial one 5 solidi. See M. F. Hendy, *Studies in the Byzantine Monetary Economy c. 300–1450* (Cambridge, 1985), 188 and 646–47. However, according to R. Delmaire, *Largesses sacrées et res privata: L’aerarium impérial et son administration du IV^e au VI^e siècle* (Rome, 1989), 552, by the late fifth century quinquennial donativa were paid only irregularly.

146 Occasionally, soldiers may have also received payments in bronze. It is unlikely that the “food allowances” (στρατιωτικοί σιτήσεις) abolished by Maurice in the 580s had until then been paid in gold (Theophylact Simocatta, *Histories* 3.1.2, ed. C. de Boor and P. Wirth [Stuttgart, 1972], 110).

147 C. Asdracha, “Inscriptions chrétiennes et protobyzantines de la Thrace orientale et de l’île d’Imbros (III^e–VII^e siècles): Présentation et commentaire historique,” *Arch. Del.* 53 (1998): 494–96. A civilian money changer (τραπεζίτης) is known from a fifth- or sixth-century funerary inscription from Corinth (*Καθημερινή ζωή* [n. 48 above], 71).

148 The small hoard from Radingrad in Thrace may be directly related to the activity of money changers. All coins have the same year, mint, and officina—Nicomedia, second officina, 539/40—which suggests that they were also recently brought from the mint. See *TMB* 152.

exclusive, presence of such coins in Greek hoards of the second group. In addition, the mixing of relatively recent coins with older specimens struck in distant mints (Antioch, Carthage) may well be the result of the peculiar reserve of cash which the *campesor* had at his disposal. More importantly, only this scenario can explain why the number of good, “heavy” coins struck for Justinian between 538 and 542 is larger in collections closed after than in those closed before the death of that emperor. The idea that the owners of those hoards were soldiers is not contradicted by the occasional mixture of coins and dress accessories—buckles and fibulae—otherwise known from military sites in the northern and central Balkans. Similarly, that so many of the hoards in the northern Balkans have been found by fort walls or in fort basilicas substantiates the hypothesis of a primarily, if not exclusively, military interpretation of collections of sixth-century copper coins. To judge from the existing evidence, many of those collections represented small amounts of money probably accumulated between two consecutive payments of *donativa*, and after the procurement of those

goods which were needed for daily subsistence. Beyond the confines of large urban centers, in the northern and central Balkans, hoards are therefore a mirror not of the money circulating on the market, but of the supply of cash through army distributions. This is particularly true for the period after ca. 600, when the only cash available in small amounts was that put into circulation through the movement of troops. Not surprisingly, the hoarding of copper ceased almost completely after ca. 620, when Heraclius withdrew the last troops from the Balkans, leaving only a few garrisons in coastal forts and cities in Greece and eastern Thrace.

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Appendixes

APPENDIX I

Sixth- to Seventh-Century Byzantine Coin Hoards in East Central, Southeastern, and Eastern Europe: A Gazetteer

This list of 346 hoards containing gold, silver, and copper is ordered primarily by the latest coin found in the hoard, then alphabetically by place. Hoards (1) which contain exclusively copper, (2) whose publication information is sufficient and complete enough to allow for statistical analysis, and (3) which have been found in an archaeological context allowing the verification of their status as hoards are assigned a copper hoard number (in boldface), to be used in conjunction with graphs (figs. 11–44) and maps (fig. 48).

Citations are provided for the earliest mentions of particular hoards in the literature. Entries for copper hoards include the complete published information (i.e., the list of all coins, with the corresponding information). *TMB* refers to page numbers in C. Morrisson, V. Popović, and V. Ivanišević, eds., *Les trésors monétaires byzantins des Balkans et d'Asie Mineure (491–713)* (Paris, 2006).

For more background on this Gazetteer, see above, 49 n. 21 and 62–63 n. 110.

LAST COIN: 491–518

1. Bŭrzovitsa, near Kiustendil (Bulgaria); N. A. Mushmov, "Kolektivni nakhodki na monet prez 1925–1926 god," *Izvestiia na Bŭlgarskiiia arkheologicheski institut* 4 (1926–27): 323.
2. Corinth (Greece); hoard found in 1960; *TMB* 231–32.
3. Dolní Bousov, district of Mladá Boleslav (Czech Republic); M. Kuna and N. Profantová, *Počátky raného středověku v Čechách: Archeologický výzkum sídelní aglomerace kultury pražského typu v Roztokách* (Prague, 2005), 283.
4. Eleusis, West Attica (Greece); hoard found in 1992; *TMB* 243.
5. Engurē, district of Tukums (Latvia); hoard found in 1923; V. Urtāns, *Senākie depozīti Latvijā (līdz 1200 g.)* (Riga, 1977), 137.
6. Gamzigrad, near Zaječar (Serbia); Đ. Janković, "Le trésor de minimi de Gamzigrad," *Numizmatičar* 7 (1984): 7–11.
7. Grizilevci, near Probištip (Macedonia); I. Mikulčić, *Spätantike und frühbyzantinische Befestigungen in Nordmakedonien: Städte-Vici-Refugien-Kastelle* (Munich, 2002), 111.
8. Osetinovo, near Stara Zagora (Bulgaria); T. Gerasimov, "Kolektivni nakhodki ot moneti prez 1956 i 1957 g.," *IzvArhInst* 22 (1959): 362.

LAST COIN: 512–18

9. Pernik (Bulgaria); hoard found in 1979; *TMB* 303, 303–4. **Copper Hoard 1.**
10. Zogeria, Spetses (Greece); hoard found in 1992; Mina Galani-Krikou, "Νομίσματα," *Αρχ.Δελτ.* 47 (1992): 71.

LAST COIN: 518–27

11. Cudalbi, Galați district (Romania); I. Dimian, "Cîteva descoperiri monetare pe teritoriul RPR," *Studii și cercetări de numismatică* 1 (1957): 190–91. **Copper Hoard 2.** *TMB* 414–15.
12. Unknown location in Greece; S. Bendall, "Byzantine Hoards," *Coin Hoards* 3 (1977): 82.
13. Haskovo (Bulgaria); T. Gerasimov, "Kolektivni nakhodki na moneti prez 1934, 1935 i 1936 god," *Izvestiia na Bŭlgarskiiia arkheologicheski institut* 11 (1937): 324.
14. Limarivka, region of Luhansk (Ukraine); V. V. Kropotkin, *Klady vizantiiskikh monet na territorii SSSR* (Moscow, 1962), 35.
15. Momin brod, near Varna (Bulgaria); I. Iurukova, "Les invasions slaves au sud du Danube d'après les trésors monétaires," *Byzantinobulgarica* 3 (1969): 262.
16. Porto Rafti, East Attica (Greece); *TMB* 270.
17. Rakovski, near Plovdiv (Bulgaria); D. Tsonchev, "Kolektivni nakhodki na moneti," *Godishnik na Narodniia Arkheologicheski Muzei Plovdiv* 4 (1960): 119.
18. Șeica Mică, district of Sibiu (Romania); P. Somogyi, "Der Fund von Kleinschelken (Siebenbürgen, 1856) im Lichte neuentdeckter Archivdaten," in *Byzantine Coins in Central Europe Between the 5th and 10th Century: Proceedings from the Conference Organized by the Polish Academy of Arts and Sciences and the Institute of Archaeology of the University of Rzeszów under the Patronage of Union Académique Internationale (Programme No. 57 Moravia Magna)*, Kraków, 23–26 IV 2007, ed. M. Wołoszyn (Cracow, 2009), 417–48.
19. Sofia (Bulgaria); hoard found in 1929; N. A. Mushmov, "Kolektivni nakhodki na moneti," *Izvestiia na Bŭlgarskiiia arkheologicheski institut* 6 (1930–31): 314.

20. Thasos (Greece); hoard found in 1977; O. Picard, "Trésors et circulation monétaire à Thasos du IV^e au VII^e siècle après J.-C.," in *Thasiaca* (Athens, 1979), 430–32.

LAST COIN: 522–27

21. Červený Hrádek, district of Kolín (Czech Republic); Kuna and Profantová, *Počátky* (see no. 3), 283.
22. Ist (Croatia); Ž. Demo, *Ostrogothic Coinage from Collections in Croatia, Slovenia, and Bosnia & Herzegovina* (Ljubljana, 1994), 218–19.
23. Pernik (Bulgaria); *TMB* 203–304. **Copper Hoard 3.**

LAST COIN: 527–32

24. Osenovo, near Varna (Bulgaria); *TMB* 150. **Copper Hoard 4.**
25. Khotyn, region of Chernivtsi (Ukraine); V. M. Butnariu, "Răspîndirea monedelor bizantine din secolele VI–VII în teritoriile carpato-dunărene," *Buletinul Societății Numismatice Române* 77–79, nos. 131–33 (1983–85): 200.

LAST COIN: 527–38

26. Kaliakra (Bulgaria); G. Kuzmanov, "Sükrovishte ot rannovizantiiski moneti na nos Kaliakra," *Vekove* 4, no. 4 (1975): 77–80.

LAST COIN: 527–65

27. Ano Voula, near Athens (Greece); *TMB* 213–14.
28. Asparukhovo, near Varna (Bulgaria); N. A. Mushmov, "Kolektivni nakhodki na moneti prez 1924 godina," *Izvestiia na Bŭlgarskiiia arkheologicheski institut* 3 (1925): 254.
29. Athens (Greece); hoard found in 1963; *TMB* 216–17.
30. Bašino selo, district of Veles (Macedonia); M. Hadži-Maneva, "Two Early Byzantine Hoards from the Veles Region," *Folia archaeologica Balcanica* 1 (2006): 461–62.
31. Biesenbrow, in Angermünde, Brandenburg (Germany); R. Laser, *Die römischen und frühbyzantinischen Fundmünzen auf dem Gebiet der DDR* (Berlin, 1982), 106–10.
32. Bielsko, Silesia (Poland); M. Wołoszyn, "Monety bizantyńskie z VI–VII w. w Polsce na tle środkowoeuropejskim," in *Archeologia o początkach Słowian: Materiały z konferencji, Kraków, 19–21 listopada 2001*, ed. P. Kaczanowski and M. Parczewski (Cracow, 2005), 662.
33. Chatal dere, near Veliko Tŭrnovo (Bulgaria); T. Gerasimov, "Kolektivni nakhodki na moneti prez 1933 i 1934 god," *Izvestiia na Bŭlgarskiiia arkheologicheski institut* 8 (1934): 470.
34. Corinth (Greece); H. Mattingly, "A Late Roman Hoard from Corinth," *NC* 11 (1931): 229–33.

35. Corinth (Greece); hoard found in 1930; H. L. Adelson and G. Kustas, "A Sixth-Century Hoard of Minimi from the Western Peloponnese," *ANSMN* 11 (1964): 162–63.
36. Corinth (Greece); hoard found in 1933; Adelson and Kustas, "Sixth-Century Hoard" (see no. 35), 163.
37. Corinth (Greece); hoard found in 1937; *TMB* 236–37.
38. Corinth (Greece); hoard found in 1971; *TMB* 232–33.
39. Corinth (Greece); hoard found in 1971; J. A. Dengate, "Coin Hoards from the Gymnasium Area at Corinth," *Hesperia* 50 (1981): 175–78.
40. Tsrŭncha, near Pazardzhik (Bulgaria); T. Gerasimov, "Kolektivni nakhodki na moneti prez poslednite godini," *IzvArhInst* 15 (1946): 238.
41. Tsvertino, near Plovdiv (Bulgaria); D. Tsonchev, "Kolektivni nakhodki na moneti," *Godishnik na Narodniia Arkheologicheski Muzei Plovdiv* 4 (1960): 208.
42. Dečerli, district of Strumica (Macedonia); *TMB* 186.
43. Dević, in Makedonski Brod (Macedonia); Mikulčić, *Spätantike und frühbyzantinische Befestigungen* (see no. 7), 111.
44. Dolno Kabile, near Kiustendil (Bulgaria); T. Gerasimov, "Kolektivni nakhodki na moneti prez 1940 g.," *Izvestiia na Bŭlgarskiiia arkheologicheski institut* 14 (1940–41): 282.
45. Dragoinovo, near Plovdiv (Bulgaria); T. Gerasimov, "Kolektivni nakhodki na moneti," *IzvArhInst* 17 (1950): 324.
46. Gara Dolene, near Lovech (Bulgaria); Gerasimov, "Kolektivni nakhodki" (see no. 13), 319.
47. Goliamo selo, near Kazanlyk (Bulgaria); Gerasimov, "Kolektivni nakhodki" (see no. 45), 320–21.
48. Gorno Vassilitsa, near Sofia (Bulgaria); T. Gerasimov, "Trésors monétaires trouvés en Bulgarie au cours de 1968, 1969 et 1970," in *Culture et art en Bulgarie médiévale (VIII^e–XIV^e s.)*, ed. D. Angelov et al. (Sofia, 1979), 134.
49. Histria, district of Constanța (Romania); A. Suceveanu and G. Poenaru-Bordea, *Histria*, vol. 6, *Les thermes romains* (Bucharest, 1982), 155–56.
50. Il'ich, region of Krasnodar (Russia); N. A. Frolova and E. Ia. Nikolaeva, "Il'ichevskii klad monet 1975 g.," *VizVrem* 39 (1978): 173–79.
51. Kailaski dol, near Plevna (Bulgaria); Iurukova, "Les invasions slaves" (see no. 15), 261.
52. Kamchiia, near Varna (Bulgaria); Iurukova, "Les invasions slaves" (see no. 15), 261.
53. Kaprije (Croatia); Demo, *Ostrogothic Coinage* (see no. 21), 219–21.
54. Komakovtsi, near Vratsa (Bulgaria); Iurukova, "Les invasions slaves" (see no. 15), 262.

55. Kończyce Małe, Silesia (Poland); Wołoszyn, "Monety bizantyńskie" (see no. 32), 662–63.
56. Kručę, near Ulcinj (Montenegro); P. Mijović, "Was Olcinium Included in the Justinian's Limes?" *Balcanslavica* 11–12 (1984–85): 80.
57. Luhansk (Ukraine); Kropotkin, *Klady* (see no. 14), 35.
58. Megara, West Attica (Greece); hoard found in 1979; *TMB* 257.
59. Mezek, near Svilengrad (Bulgaria); Iurukova, "Les invasions slaves" (see no. 15), 262.
60. Mirovo gara, near Sofia (Bulgaria); T. Gerasimov, "Sükrovishta ot moneti, namereni v Bŭlgariia prez 1960 i 1961 g.," *IzvArhInst* 26 (1963): 260.
61. Niš (Serbia); Z. Vinski, "Krstoliki nakit epohe seobe naroda u Jugoslaviji," *Vjesnik arheološkog muzeja u Zagrebu* 3 (1968): 109.
62. Oriakhovo, near Smolian (Bulgaria); Gerasimov, "Kolektivni nakhodki" (see no. 33), 471.
63. Orsk, province of Orenburg (Russia); Kropotkin, *Klady* (see no. 14), 26.
64. Patras (Greece); found in 1938; *TMB* 264.
65. Satu Nou, district of Constanța (Romania); B. Mitrea, "Un tezaur de monede bizantine descoperit la Constanța," *Pontica* 16 (1983): 259.
66. Solin, near Split (Croatia); I. A. Mirnik, *Coin Hoards in Yugoslavia* (Oxford, 1981), 89 (no. 347).
67. Solin, near Split (Croatia); Mirnik, *Coin Hoards* (see no. 66), 89 (no. 348).
68. Solin, near Split (Croatia); Mirnik, *Coin Hoards* (see no. 66), 89 (no. 349).
69. Streletsk Bay, Crimea (Ukraine); Kropotkin, *Klady* (see no. 14), 34.
70. Trud, near Plovdiv (Bulgaria); Tsonchev, "Kolektivni nakhodki" (see no. 41), 208.
71. Trypi, Laconia (Greece); *TMB* 286–87.
72. Varna (Bulgaria); hoard found in 1937; Gerasimov, "Kolektivni nakhodki" (see no. 13), 320.
73. Vladimirovo, province of Berovo (Macedonia); Mikulčić, *Spätantike und frühbyzantinische Befestigungen* (see no. 7), 111.
74. Zacha(ro), Elis (Greece); Adelson and Kustas, "Sixth-Century Hoard" (see no. 35), 159–61.
75. Zlatosel, near Plovdiv (Bulgaria); Gerasimov, "Kolektivni nakhodki" (see no. 13), 322.

LAST COIN: 530

76. Sisak (Croatia); Mirnik, *Coin Hoards* (see no. 66), 89.

LAST COIN: 532–37

77. Zlatni Piasatsi, district of Dobrich (Bulgaria); *TMB* 160–61. **Copper Hoard 5.**

LAST COIN: 533–38

78. Megara, West Attica (Greece); hoard found in 1884; *TMB* 257.

LAST COIN: 535/36

79. Pučišće, Brač (Croatia); Mirnik, *Coin Hoards* (see no. 66), 89.

LAST COIN: 536

80. Budva (Montenegro); J. Petrović, "Numizmatički izvještaji," *Glasnik Zemaljskog Muzeja Bosne i Hercegovine u Sarajevu* 11 (1955): 97–106.

LAST COIN: 537/38

81. Novo selo, district of Strumica (Macedonia); J. Kondijarov, "The Early Byzantine Hoard from Novo Selo, near Strumica," *Macedonian Numismatic Journal* 2 (1996): 95–104. **Copper Hoard 6.**
82. Oreše, district of Veles (Macedonia); Dj. Petački, "The Early Byzantine Hoard from the Village of Oreše," *Macedonian Numismatic Journal* 2 (1996): 87–93.
83. Petrochorion, district of Xanthi (Greece); *TMB* 122–23. **Copper Hoard 7.**
84. Pomorie, district of Burgas (Bulgaria); *TMB* 143–44. **Copper Hoard 8.**
85. Prahovo (Serbia); V. Popović, "Petits trésors et trésors démembrés de monnaie de bronze protobyzantines de Serbie," *Numizmatičar* 7 (1984): 58. **Copper Hoard 9.**
86. Sekulica, district of Kumanovo (Macedonia); J. Kondijarov, "Dve ostavi so paleovizantiski pari od s. Sekulica, Kratovsko," *Macedoniae Acta Archaeologica* 11 (1987–89): 202–11.
87. Simitlii, near Blagoevgrad (Bulgaria); *TMB* 193–94.
88. Suva Reka (Suhareka), district of Prizren (Kosovo); D. Gaj-Popović, "Trois trésors de monnaies de bronze protobyzantins du Musée National de Belgrade," *Numizmatičar* 7 (1984): 18–21.

LAST COIN: 538–42

89. Međulužje, near Mladenovac (Serbia); *TMB* 342.
90. Pŭrvomai, near Plovdiv (Bulgaria); T. Gerasimov, "Monetni sükrovishta, namereni v Bŭlgariia prez 1958 i 1959 g.," *IzvArhInst* 25 (1962): 227.
91. Sekulica, district of Kumanovo (Macedonia); V. Ivanišević and J. Kondijarov, "Le trésor de Sekulica," *RN* 34 (1992): 77–99.
92. Zašovice, district of Třebíč (Czech Republic); Kuna and Profantová, *Počátky* (see no. 3), 286.

LAST COIN: 538-62

93. Boeotia (Greece); S. Bendall, "A Hoard of 16 Nummia Coins of Thessalonica," *NC* 101, no. 5 (1993): 152.

LAST COIN: 538/39

94. Sadovik, near Pernik (Bulgaria); *TMB* 305.

LAST COIN: 539/40

95. Gjegjovë, district of Berat (Albania); H. Spahiu and N. Çuni, "Monedha antike e bizantine nga lugina e Sipërme e Osumit (Rrethi i Skraparit)," *Iliria* 18 (1988): 248-52. **Copper Hoard 10.**
96. Radingrad, near Razgrad (Bulgaria); *TMB* 152. **Copper Hoard 11.**

LAST COIN: CA. 540

97. Kaštel Stari, in Kaštela, near Split (Croatia); I. Mirnik, "Skupni nalaz bizantskog brončanog novca 6. stoljeća iz Kaštel Stari," *Vjesnik Arheološkog Muzeja u Zagrebu* 9 (1975): 161-66.

LAST COIN: 540/41

98. Hradec Králove (Czech Republic); Kuna and Profantová, *Počátky* (see no. 3), 283.
99. Prague (Czech Republic); Kuna and Profantová, *Počátky* (see no. 3), 283.

LAST COIN: 540-47

100. Žinkovy, district Plzeň South (Czech Republic); Kuna and Profantová, *Počátky* (see no. 3), 284.

LAST COIN: 541/42

101. Grnčare (Gërçar), near Gjilan, district of Prishtinë (Kosovo); V. Radić, "Ostava ranovizantijskog novtša iz sela Grnčar kod Gnjilana," *Numizmatičar* 14 (1991): 49-56. **Copper Hoard 12.**

LAST COIN: 542-47

102. Katuntsi, near Sandanski (Bulgaria); *TMB* 190.

LAST COIN: 542-62

103. Amphipolis, Central Macedonia (Greece); *TMB* 184-85.

LAST COIN: 542-65

104. Hadzhi Sinalar, near Varna (Bulgaria); Z. Khristova, "Sükrovishte ot Hadzhi Sinalar," *Numizmatika i sfragistika* (Sofia) 1-4 (1993): 80-92.
105. Hajdučka Vodenica, near Negotin (Serbia); V. Kondić, "Le trésor de monnaies d'or de Hajdučka Vodenica

(limes Danubien)," in *Caričin Grad: Les basiliques B et J de Caričin Grad, quatre objets remarquables de Caričin Grad, le trésor de Hajdučka Vodenica*, ed. N. Duval and V. Popović (Belgrade and Rome, 1984), 179-88.

106. Kötschach-Laas, near Hermagor (Austria); W. Hahn, "Die Fundmünzen des 5.-9. Jahrhunderts in Österreich und den unmittelbar angrenzenden Gebieten," in *Die Geburt Mitteleuropas: Geschichte Österreichs vor seiner Entstehung 378-907*, ed. H. Wolfram (Vienna, 1987), 454.
107. Nestani, Arcadia (Greece); *TMB* 261.
108. Sisak (Croatia); Demo, *Ostrogothic Coinage* (see no. 22), 225-29.
109. Trnovo, near Ilirska Bistrica (Slovenia); Demo, *Ostrogothic Coinage* (see no. 22), 223-25.

LAST COIN: 543/44

110. Kavarna, near Balchik (Bulgaria); V. Ivanov, "Niakolko monetni nakhodki ot iuzhna Dobrudzha," *Dobrudzha* 12 (1995): 311.
111. Klinovac, near Vranje (Serbia); D. Gaj-Popović, "Dve ostave bronzanog vizantijskog novtša VI veka iz numismatičke zbirke Narodnog Muzeja u Beogradu," *Zbornik narodnog muzeja* 7 (1973): 30-32. **Copper Hoard 13.**
112. Starye Beliary, region of Odessa (Ukraine); E. S. Stoliarik, "Klad vizantijskikh bronzovykh VI v. iz Starye Beliary, Odesskoj oblasti," in *Severnoe Prichernomor'e*, ed. G. A. Dzis-Raiko (Kiev, 1984), 136-38; eadem, *Essays on Monetary Circulation in the North-Western Black Sea Region in the Late Roman and Byzantine Periods (Late 3rd Century-Early 13th Century AD)* (Odessa, 1992), 63. **Copper Hoard 14.**

LAST COIN: 544/45

113. Dobra, near Negotin (Serbia); D. Minić, "Le trésor de monnaies de bronze protobyzantin de Dobra," *Numizmatičar* 7 (1984): 12-17. **Copper Hoard 15.**

LAST COIN: 545/46

114. Constanța (Romania); Mitrea, "Un tezaur de monede bizantine" (see no. 65), 239-62; G. Poenaru-Bordea and E. Nicolae, "Minimi din tezaurul descoperit la Constanța, în cartierul Anadolchioi," *Buletinul Societății Numismatice Române* 80-85, nos. 134-39 (1986-91): 101-15. **Copper Hoard 16.**

LAST COIN: 546/47

115. Beloiarivka, region of Donetsk (Ukraine); Kropotkin, *Klady* (see no. 14), 36.
116. Blagoevgrad (Bulgaria); *TMB* 185. **Copper Hoard 17.**

117. Gotse Delchev (Bulgaria); *TMB* 119–20. **Copper Hoard 18.**

118. Žďar nad Sázavou (Czech Republic); Kuna and Profantová, *Počátky* (see no. 3), 286.

LAST COIN: 547/48

119. Osikovo, near Vratsa (Bulgaria); Gerasimov, “Kolektivni nakhodki” (see no. 39), 237.

LAST COIN: 548/49

120. Godiachevo, near Blagoevgrad (Bulgaria); *TMB* 186–87. **Copper Hoard 19.**

LAST COIN: 550/51

121. Smolian (Bulgaria); *TMB* 138.

LAST COIN: 551/52

122. Selce, district of Bitola (Macedonia); *TMB* 208–9.

LAST COIN: 552/53

123. Garmen, near Kiustendil (Bulgaria); *TMB* 301. **Copper Hoard 20.**

LAST COIN: 552–62

124. Adam Zagliveriou, Central Macedonia (Greece); *TMB* 183 and 228–29.

125. Athens (Greece); H. L. Weller and D. M. Metcalf, “A Hoard of Byzantine 16 Nummia Coins Minted at Thessaloniki in the Time of Justinian I,” *Balkan Studies* 10 (1969): 311–14.

126. Stari Slankamen, near Pazova (Serbia); *TMB* 345. **Copper Hoard 21.**

LAST COIN: 553/54

127. Shumen (Bulgaria); D. Vladimirova-Aladzhova, “Numizmatichni dannii za krepostta Stana, Shumensko, prez rannovizantiiskata epokha,” *Trudove na katedrite Istorii i Bogoslovie kŭm Shumenskiiia universitet “Episkop Konstantin Preslavski”* 2 (1998): 27–29.

LAST COIN: 555/56

128. Pavelsko, near Smolian (Bulgaria); *TMB* 137.

129. Riakhovets, near Veliko Tŭrnovo (Bulgaria); I. Bŭchvarov, “Kolektivni monetni nakhodki ot krepostta Riakhovets pri Gorna Oriakhovitsa,” *Numizmatika* 24, no. 3 (1990): 33–34 and 39–40. **Copper Hoard 22.**

LAST COIN: 556/57

130. Malo Golubnje, near Negotin (Serbia); Popović, “Petits trésors” (see no. 85), 58–59. **Copper Hoard 23.**

131. Plumbuita, district of Călărași (Romania); E. Oberländer-Târnoveanu, “La monnaie byzantine des VI^e–VIII^e siècles au-delà de la frontière du Bas-Danube: Entre politique, économie et diffusion culturelle,” *Histoire & Mesure* 17, nos. 3–4 (2002): 168–69.

LAST COIN: 555–65

132. Barovo, district of Skopje (Macedonia); *TMB* 332.

LAST COIN: 557/58

133. Zelenigrad, near Pernik (Bulgaria); *TMB* 309–10.

LAST COIN: 557–62

134. Skačinci, district of Veles (Macedonia); V. Lilčić and K. Adžievski, “Coin Hoard Discovered in the Veles District,” *Macedonian Numismatic Journal* 3 (1999): 73–80. **Copper Hoard 24.**

LAST COIN: 559–65

135. Turnov, district of Semily (Czech Republic); Kuna and Profantová, *Počátky* (see no. 3), 283.

LAST COIN: 562/63

136. Batareiata, near Varna (Bulgaria); V. Ivanov, “Nakhodka ot moneti ot VI vek ot mestnostta Batareiata kraj Varna,” in *Numizmatichni i sfragistichni prinosi kŭm istoriiata na zapadnoto Chernomorie: Mezhdunarodna konferentsiia, Varna, 12–15 septemvri 2001 g.*, ed. V. Iotov and I. Lazarenko (Varna, 2004), 197–202. **Copper Hoard 25.**

137. Teteven (Bulgaria); *TMB* 330.

LAST COIN: 562–65

138. Niš (Serbia); Popović, “Petits trésors” (see no. 84), 59–61. **Copper Hoard 26.**

LAST COIN: 563/64

139. Cape Shabla (Bulgaria); S. Torbatov, “Rannovizantiisko monetno sŭkrovishte ot kastela Carea/Creas (provinciia Skitiia),” *Numizmatika i sfragistika* 9 (2002–3): 22–26.

140. Caričin Grad, near Lebane (Serbia); Popović, “Petits trésors” (see no. 84), 61–63. **Copper Hoard 27.**

141. Slatine, near Trogir (Croatia); I. Marović, “Depot bizantskog novca iz Slatina (o. Čiovo) i novci Solinske kovnice u Arheološkom Muzeju u Splitu,” *Vjesnik za arheologiju i historiju Dalmatinsku* 79 (1986): 285–308.

LAST COIN: 565/66

142. Corinth (Greece); hoard found in 1965; *TMB* 238.

LAST COIN: 565–78

143. Argos (Greece); hoard found between 1892 and 1895; *TMB* 214–15.
144. Athens (Greece); hoard found in 1933; *TMB* 220; D. M. Metcalf, “The Slavonic Threat to Greece circa 580: Some Evidence from Athens,” *Hesperia* 31 (1962): 155–56. **Copper Hoard 28.**
145. Athens (Greece); hoard found in 1933; *TMB* 218–19; Metcalf, “Slavonic Threat” (see no. 144), 138–41. **Copper Hoard 29.**
146. Batuliia, near Sofia (Bulgaria); Gerasimov, “Kolektivni nakhodki” (see no. 33), 467.
147. Blatnica, near Čitluk (Bosnia and Herzegovina); Demo, *Ostrogothic Coinage* (see no. 22), 235–36.
148. Borec, near Plovdiv (Bulgaria); Gerasimov, “Kolektivni nakhodki” (see no. 13), 318.
149. Corinth (Greece); hoard found in 1971; Dengate, “Coin Hoards” (see no. 39), 153–75.
150. Eleusis, West Attica (Greece); hoard found in 1992; *TMB* 244.
151. Eleusis, West Attica (Greece); *TMB* 244–45. **Copper Hoard 30.**
152. Grbavec, near Kavadarci (Macedonia); Mikulčić, *Spätantike und frühbyzantinische Befestigungen* (see no. 7), 319.
153. Grabovnik-Vrtljak, near Ljubuški (Bosnia and Herzegovina); Demo, *Ostrogothic Coinage* (see no. 22), 233–35.
154. Kenchreai, Corinthia (Greece); hoard found in 1963; R. H. Hohlfelder, “A Sixth-Century Hoard from Kenchreai,” *Hesperia* 42 (1973): 89–101; *TMB* 252–53. **Copper Hoard 31.**
155. Kolín (Czech Republic); Kuna and Profantová, *Počátky* (see no. 3), 282.
156. Nanovitsa, near Krumovgrad (Bulgaria); Gerasimov, “Trésors monétaires” (see no. 48), 140.
157. Nova Nadezhda, near Haskovo (Bulgaria); Gerasimov, “Kolektivni nakhodki” (see no. 13), 322.
158. Olympia, Elis (Greece); hoard found in 1876 or 1877; *TMB* 261–62.
159. Unknown location in the Peloponnese (Greece); D. M. Metcalf, “The Minting of Gold Coinage at Thessalonica in the Fifth and Sixth Centuries and the Gold Currency of Illyricum and Dalmatia,” in *Studies in Early Byzantine Gold Coinage*, ed. W. Hahn and W. E. Metcalf (New York, 1988), 107.
160. Pinios, Elis (Greece); A. Avramea, “Νομισματικοὶ «θησαυροὶ» καὶ μεμονωμένα νομίσματα ἀπὸ τὴν Πελοπόννησο (ΣΤ'–Ζ' αἰ.),” *Σύμμεικτα* 5 (1983): 66.

161. Pliska, near Shumen (Bulgaria); T. Gerasimov, “Kolektivni nakhodki na moneti prez 1955 godina,” *Izv-ArhInst* 21 (1957): 325.
162. Popovo, near Varna (Bulgaria); *TMB* 151.
163. Pustogradsko (Stobi, Macedonia); *TMB* 209.
164. Sadovets, near Pleven (Bulgaria); hoard found in 1936; *TMB* 322. **Copper Hoard 32.**
165. Shumen (Bulgaria); *TMB* 155–56.
166. Silistra (Bulgaria); hoard found in 1986; *TMB* 155.
167. Stan, near Novi Pazar (Bulgaria); D. Vladimirova-Aladzova, “Istoricheskata sudba na krepostite pri Stan i Voivoda V–VII vek (po numizmatichni dannii),” *Pliska-Preslav* 9 (2003): 116.
168. Thebes, Boiotia (Greece); hoard found in 1932; *TMB* 285–86. **Copper Hoard 33.**
169. Thessaloniki (Greece); *TMB* 199. **Copper Hoard 34.**
170. Zogeria, Spetses (Greece); hoard found in 1979; *TMB* 278.

LAST COIN: 565/78?

171. Sofia (Bulgaria); I. Iurukova, “Les invasions slaves au sud du Danube d’après les trésors monétaires,” *Byzantinobulgarica* 3 (1969): 261.

LAST COIN: 567/68

172. Topalu, district of Constanța (Romania); Dimian, “Cîteva descoperiri monetare” (see no. 11), 191–92, and G. Poenaru-Bordea, “Monnaies byzantines des VI^e VII^e siècles en Dobroudja,” in *Actes du XIV^e Congrès International des Études Byzantines, Bucarest, 6–12 septembre 1971*, ed. M. Berza and E. Stănescu (Bucharest, 1976), 207; *TMB* 179–80. **Copper Hoard 35.**

LAST COIN: 567–78

173. Brkač, near Pazin, Istria (Croatia); A. Miškec, *Die Fundmünzen der römischen Zeit in Kroatien*, vol. 18, *Istrien* (Mainz, 2002), 62–63.

LAST COIN: 568/69

174. Caričin Grad, near Lebane (Serbia); Popović, “Petits trésors” (see no. 85), 63–64. **Copper Hoard 36.**
175. Thebes, Boiotia (Greece); hoard found in 1995; M. Galani-Krikou, “Θήβα 605–1505 αἰ. μ. Χ.: Η νομισματική μαρτυρία ἀπὸ τὴν ανασκαφή στο Πολιτιστικό κέντρο,” *Σύμμεικτα* 12 (1998): 165–66.

LAST COIN: 568–85

176. Tekija, near Kladovo (Serbia); Popović, “Petits trésors” (see no. 84), 72–75; *TMB* 329. **Copper Hoard 37.**

LAST COIN: 569/70

177. Caričin Grad, near Lebane (Serbia); hoard found in 1975; Popović, "Petits trésors" (see no. 85), 66–67. **Copper Hoard 38.**
178. Caričin Grad, near Lebane (Serbia); hoard found in 1952; Popović, "Petits trésors" (see no. 85), 64–66. **Copper Hoard 39.**
179. Laurion, East Attica (Greece); *TMB* 254–55. **Copper Hoard 40.**
180. Spata, East Attica (Greece); *TMB* 276. **Copper Hoard 41.**
181. Vodno, district of Skopje (Macedonia); Mikulčić, *Spätantike und frühbyzantinische Befestigungen* (see no. 7), 110.

LAST COIN: 570/71

182. Caričin Grad, near Lebane (Serbia); hoard found in 1979; Popović, "Petits trésors" (see no. 85), 68–69. **Copper Hoard 42.**
183. Mačvanska Mitrovica, near Sremska Mitrovica (Serbia); V. Dautova-Ruševljanin, "Ostave barbarskog, rimskog i vizantijskog novca iz Vojvodine," *Numizmatičar* 4 (1981): 71.
184. Pirot (Serbia); Popović, "Petits trésors" (see no. 85), 69–70. **Copper Hoard 43.**

LAST COIN: 571/72

185. Arnoldstein, near Villach (Austria); Hahn, "Die Fundmünzen" (see n. 106), 454.
186. Dolno Sakhrane, near Stara Zagora (Bulgaria); *TMB* 128–29. **Copper Hoard 44.**
187. Novo Makhala, near Pazardzhik (Bulgaria); *TMB* 133–34. **Copper Hoard 45.**
188. Orchomenos, Arcadia (Greece); *TMB* 262.
189. Patelenitsa, near Pazardzhik (Bulgaria); *TMB* 135–36.
190. Thasos (Greece); hoard found in 1957; Picard, "Trésors et circulation monétaire" (see no. 20), 450 and 453. **Copper Hoard 46.**

LAST COIN: 572/73

191. Bašino selo, district of Veles (Macedonia); *TMB* 206; Hadži-Maneva, "Two Early Byzantine Hoards" (see no. 30), 461–62. **Copper Hoard 47.**
192. Vojnica, district of Veles (Macedonia); Hadži-Maneva, "Two Early Byzantine Hoards" (see no. 30), 459–61. **Copper Hoard 48.**
193. Biala reka, near Shumen (Bulgaria); Gerasimov, "Kolektivni nakhodki" (see no. 45), 320.
194. Bratsigovo, near Pazardzhik (Bulgaria); Iurukova, "Les invasions slaves" (see no. 15), 262.

195. Goliamia Kotlovitsa, near Montana (Bulgaria); Iurukova, "Les invasions slaves" (see no. 15), 262.

LAST COIN: 573/74

196. Baniska, near Ruse (Bulgaria); *TMB* 145–46.
197. Bozikas, Argolis (Greece); Avramea, "Νομισματικοὶ «θησαυροὶ»" (see no. 160), 60.
198. Bohouňovice, district of Kolín (Czech Republic); Kuna and Profantová, *Počátky* (see no. 3), 284.
199. Hlinsko, district of Chrudim (Czech Republic); Kuna and Profantová, *Počátky* (see no. 3), 284.
200. Leskovac (Serbia); *TMB* 301–2. **Copper Hoard 49.**
201. Silistra (Bulgaria); hoard found in 1960; *TMB* 154. **Copper Hoard 50.**

LAST COIN: 574/75

202. Belovo, near Pazardzhik (Bulgaria); hoard found in 1977; *TMB* 123–24. **Copper Hoard 51.**
203. Belovo, near Pazardzhik (Bulgaria); hoard found in 1978; *TMB* 124–25. **Copper Hoard 52.**
204. Majsan (Croatia); I. Mirnik, "Ostava bizantskog novca s Majsana," *Numizmatičar* 5 (1982): 141–46; idem, "Nalazi novca s Majsana," *Vjesnik Arheološkog Muzeja u Zagrebu* 18 (1985): 88 and 93–94. **Copper Hoard 53.**
205. Murighiol, district of Tulcea (Romania); hoard found in 1982; C. Opaî, "Descoperiri monetare în fortificația de la Independența, județul Tulcea," *Peuce* 10 (1991): 457–83 (esp. 477–78). **Copper Hoard 54.**
206. Zagrade, in Gürmen, near Blagoevgrad (Bulgaria); V. Penchev, "Kolektivna nakhodka ot medni vizantiiski moneti ot VI v. namerena pri razkopkite na Nikopolis ad Nestum," *Numizmatika* 22, no. 2 (1988): 24–38 (with different identifications and distribution); idem, "Hoard of VI Century Byzantine Copper Coins Discovered during the Excavations in Nicopolis ad Nestum," *Macedonian Numismatic Journal* 4 (2000): 95–106 (with only 137 coins, without any nummia). **Copper Hoard 55.**

LAST COIN: 575/76

207. Agios Nikolaos, Arcadia (Greece); *TMB* 248–49. **Copper Hoard 56.**
208. Brza Palanka, near Negotin (Serbia); A. Jovanović, "Un petit trésor de monnaies de bronze de la forteresse protobyzantine près de Slatinska Reka," *Numizmatičar* 7 (1984): 31–35. **Copper Hoard 57.**
209. Kenchreai, Corinthia (Greece); hoard found in 1963; R. H. Hohlfelder, "A Small Deposit of Bronze Coins from Kenchreai," *Hesperia* 39 (1970): 68–72; *TMB* 251. **Copper Hoard 58.**

210. Mantinea, Arcadia (Greece); *TMB* 256. **Copper Hoard 59.**

LAST COIN: 576/77

211. Murighiol, district of Tulcea (Romania); hoard found in 1985; Opaî, "Descoperiri monetare" (see no. 205), 478–79. **Copper Hoard 60.**
212. Nemea, Argolis (Greece); *TMB* 259. **Copper Hoard 61.**
213. Sandanski (Bulgaria); *TMB* 191–92. **Copper Hoard 62.**
214. Thebes, Boiotia (Greece); hoard found in 1995; Galani-Krikou, "Θήβα 605–1505 α. μ. Χ." (see no. 175), 166.
215. Zogeria, Spetses (Greece); hoard found in 1992; Galani-Krikou, "Νομίσματα" (see no. 10), 71.

LAST COIN: 577/78

216. Boljetin, near Negotin (Serbia); Popović, "Petits trésors" (see no. 85), 71–72. **Copper Hoard 63.**
217. Gropeni, district of Brăila (Romania); Dimian, "Cîteva descoperiri monetare" (see no. 11), 193–94; O. Iliescu, "Emisiune monetară la Antiohia în aprilie-iunie 540," *Buletinul Societății Numismatice Române* 67–69 (1973–75): 113–17. **Copper Hoard 64.**
218. Koutsi, near Nemea, Argolis (Greece); *TMB* 260. **Copper Hoard 65.**
219. Megara, West Attica (Greece); *TMB* 257–58. **Copper Hoard 66.**

LAST COIN: 578/79

220. Varna (Bulgaria); hoard found in 1950; *TMB* 156–57. **Copper Hoard 67.**
221. Sadovets, near Plevn (Bulgaria); hoard found in 1936; *TMB* 318–19. **Copper Hoard 69**
222. Veliko Orašje, near Smederevo (Serbia); Gaj-Popović, "Trois trésors" (see no. 88), 23–26.

LAST COIN: 578–82

223. Grabovnik, near Mostar (Bosnia and Herzegovina); Mirnik, *Coin Hoards* (see no. 66), 88.
224. Gerche bunar, near Burgas (Bulgaria); N. A. Mushmov, "Kolektivni nakhodki na moneti," *Izvestiia na Bŭlgarskiiia arkheologicheski institut* 5 (1928–29): 382.
225. Guberevac, near Mladenovac (Serbia); *TMB* 341–42.
226. Hinog, district of Constanța (Romania); G. Poenaru-Bordea and R. Ocheșanu, "Tezaurul de monede bizantine de aur descoperit în săpăturile arheologice din anul 1899 de la Axiopolis," *Buletinul Societății Numismatice Române* 77–79, nos. 131–33 (1983–85): 177–80.
227. Pustogradsko (Stobi, Macedonia); hoard found in 1981; *TMB* 209–10.

228. Resenovo, near Pazardzhik (Bulgaria); Mushmov, "Kolektivni nakhodki" (see no. 224), 382.
232. Slava Rusă, district of Tulcea (Romania); G. Poenaru-Bordea and B. Mitrea, "Découvertes monétaires en Roumanie 1988 (XXXXII)," *Dacia* 33 (1989): 265.
229. Thessaloniki (Greece); M. Oikonomidou-Karamesini and I. Touratsoglou, "The 1948 Thessaloniki Hoard of 6th Century Byzantine Gold Coins: A Contribution to the Study of the Mint of Thessaloniki," *Numismatica e antichità classiche* 8 (1979): 294–310.
230. Vodno, district of Skopje (Macedonia); *TMB* 335.
231. Zogeria, Spetses (Greece); hoard found in 1995; *TMB* 279–80. **Copper Hoard 68.**

LAST COIN: 579–82

233. Athens (Greece); hoard found in 1971; J. H. Kroll, G. C. Miles, and S. G. Miller, "An Early Byzantine and a Late Turkish Hoard from the Athenian Agora," *Hesperia* 42 (1973): 301–2. **Copper Hoard 70.**

LAST COIN: CA. 580

234. Argos (Greece); *TMB* 215–16.

LAST COIN: 580/1

235. Veliko Gradište, near Požarevac (Serbia); Popović, "Petits trésors" (see no. 85), 75–77. **Copper Hoard 71.**

LAST COIN: 581/82

236. Athens (Greece); hoard found in 1936; Metcalf, "Slavonic Threat" (see no. 144), 144. **Copper Hoard 72.**
237. Khŭrlets, near Vratsa (Bulgaria); *TMB* 311.
238. Sofia (Bulgaria); *TMB* 306–7.

LAST COIN: 582/83

239. Agia Kyriaki, Messenia (Greece); *TMB* 268–69. **Copper Hoard 73.**
240. Argos (Greece); hoard found in 1983; *TMB* 216.
241. Koprivets, near Ruse (Bulgaria); *TMB* 148–49. **Copper Hoard 74.**
242. Sadovets, district of Plevn (Bulgaria); hoard found in 1936; *TMB* 321. **Copper Hoard 75.**

LAST COIN: 582–600

243. Apidea, Laconia (Greece); *TMB* 214.
244. Bački Monostor, near Sombor, Vojvodina (Serbia); P. Somogyi, *Byzantinische Fundmünzen der Awarenzeit* (Innsbruck, 1997), 26.
245. Bela Palanka, near Pirot (Serbia); *TMB* 294.
246. Histria, district of Constanța (Romania); hoard found in 1950; Suceveanu and Poenaru-Bordea, *Histria*, vol. 6 (see no. 49), 157–58. **Copper Hoard 76.**

247. Patras (Greece); hoard found in 1986; A. G. Moutzali, "Ἡ πόλη των Πατρών κατά τον 6^ο και 7^ο αιώνα: Η μυθολογία της εγκατάλειψης," in *Πρωτοβυζαντινή Μεσσηνή και Ολυμπία: Αστικός και αγροτικός χώρος στη Δυτική Πελοπόννησο: Πρακτικά του Διεθνούς Συμποσίου, Αθήνα, 20–30 Μαΐου 1998*, ed. P. G. Themelis and V. Konti (Athens, 2002), 183.
248. Troianul, district of Teleorman (Romania); E. Oberländer-Târnoveanu, "Barbaricum apropiat—populațiile din Muntenia și Imperiul Bizantin (secolele VI–X)—mărturia numismaticii," *Ialomița: Studii și comunicări* 4 (2004): 353.
249. Samarinovac, near Negotin (Serbia); *TMB* 327.
250. Zogeria, Spetses (Greece); Galani-Krikou, "Νομίσματα" (see no. 10), 69.

LAST COIN: 583/84

251. Abrit, near Dobrich (Bulgaria); S. Torbatov, "Ranovizantiisko zlatno monetno sŭkrovishte ot Zaldapa (provintsiia Skitiia)," *Numizmatika i sfragistika* (Sofia) 5, no. 1 (1998): 64–69.
252. Athens (Greece); hoard found in 1908; *TMB* 225–26. **Copper Hoard 77.**
253. Bitola (Macedonia); T. Janakievski, "Naodi na vizantiski moneti vo gradbite 5a i 5b od dotsnoantichkata mikrostanbena celina brz rimskiot teatar vo Heraclea Lyncestis," *Macedoniae Acta Archaeologica* 4 (1978): 189–96. **Copper Hoard 78.**
254. Bitola (Macedonia); Janakievski, "Naodi na vizantiski moneti" (see no. 253), 196–98. **Copper Hoard 79.**
255. Eleusis, West Attica (Greece); hoard found in 1893; *TMB* 246–47. **Copper Hoard 80.**
256. Isthmia, Corinthia (Greece); hoard found in 1954; *TMB* 249–50. **Copper Hoard 81.**
257. Kleitoria, Arcadia (Greece); *TMB* 253–54. **Copper Hoard 82.**
258. Priolithos Kalavryton, Arcadia (Greece); *TMB* 271–72. **Copper Hoard 83.**
259. Skopje (Scupi, Macedonia); M. Hadži-Maneva, "Coin Hoards from the Late 6th and 7th Century Discovered in the Republic of Macedonia," in Wołoszyn, ed., *Byzantine Coins in Central Europe* (see no. 18), 49.
260. Pustogradsko (Stobi, Macedonia); hoard found in 2005; Hadži-Maneva, "Coin Hoards" (see no. 259), 49.
261. Pustogradsko (Stobi, Macedonia); hoard found in 1981; Hadži-Maneva, "Coin Hoards" (see no. 259), 49.
262. Vid, near Makarska (Croatia); I. Marović, "A Hoard of Byzantine Gold Coins from Naron," in *Studia numismatica Labacensia Alexandro Jeločnik oblata*, ed. P. Kos and Ž. Demo (Ljubljana, 1988), 295–316.

LAST COIN: 584/85

263. Adamclisi, district of Constanța (Romania); R. Ocheșeanu, "Tezaurul de monede bizantine descoperit la Tropaeum Traiani în campania arheologică din anul 1908," *Studii și cercetări de numismatică* 11 (1995): 163–82.
264. Baba, near Prilep (Macedonia); K. Kepeski, "Ranovizantiska ostava na bronzeni moneti od mestoto Baba kaj Prilep," *Macedoniae Acta Archaeologica* 3 (1977): 181–93.
265. Goren Kozjak, near Štip (Bargala, Macedonia); B. Aleksova, "The Byzantine Coin Hoard of Bargala," in *Coins and Mints in Macedonia: Proceedings of the Symposium Held in Honor of the 80th Birthday and 50th Anniversary of the Scholarly and Educational Work of Ksente Bogoev, Member of the Macedonian Academy of Arts and Sciences*, ed. C. Grozdanov (Skopje, 2001), 97–98. **Copper Hoard 84.**
266. Pellene, Corinthia (Greece); hoard found in 1936; *TMB* 265–66. **Copper Hoard 85.**

LAST COIN: 584–600

267. Belovo, near Pazardzhik (Bulgaria); *TMB* 126.
268. Eleusis, West Attica (Greece); *TMB* 245.
269. Iambol (Bulgaria); hoard found in 1977; N. Tancheva-Vasileva, "Dve zlatni monetni sŭkrovishta ot Kabile," in *Kabile*, ed. V. Velkov (Sofia, 1991), 83–90.
270. Provadiia, near Varna (Bulgaria); *TMB* 151–52.
271. Sadovets, near Pleven (Bulgaria); hoard found in 1934; *TMB* 326.
272. Sadovets, near Pleven (Bulgaria); hoard found in 1937; *TMB* 325.
273. Sadovets, near Pleven (Bulgaria); hoard found in 1936; *TMB* 324.
274. Sadovets, near Pleven (Bulgaria); hoard found in 1936; *TMB* 322–23.

LAST COIN: 585/86

275. Zhŭlŭd, near Shumen (Bulgaria); *TMB* 158–60. **Copper Hoard 86.**

LAST COIN: 586/87

276. Ohrid (Macedonia); found in a building excavated inside "Samuel's fort"; *TMB* 291–92. **Copper Hoard 87.**

LAST COIN: 588/89

277. Iambol (Bulgaria); *TMB* 131.

LAST COIN: 590/91

278. Adamclisi, district of Constanța (Romania); hoard found in 1993; I. Bogdan-Cățănciu and G.

Poenaru-Bordea, "Un mic tezaur de monede bizantine descoperit la Tropaeum Traiani," *Buletinul Societății Numismatice Române* 90–91 (1996–97): 85–95. **Copper Hoard 88.**

LAST COIN: 591/92

279. Câșla (Romania); E. Oberländer-Târnoveanu, *Monedă și societate în teritoriile de la sud și est de Carpați (secolele VI–XIV)* (Cluj-Napoca, 2003), 377.

LAST COIN: 594/95

280. Histria, district of Constanța (Romania); hoard found in 1950; C. Preda and H. Nubar, *Histria*, vol. 3, *Descoperirile monetare 1914–1970* (Bucharest, 1973), 229–31. **Copper Hoard 89.**
281. Unirea, district of Călărași (Romania); Dimian, "Cîteva descoperiri monetare" (see no. 11), 413–16; idem, "Tezaur de monede bizantine găsit la Șocariciu," *Studii și cercetări de numismatică* 2 (1958): 413–16. **Copper Hoard 90.**
282. Veliki Gradac, near Negotin (Serbia); D. Minić, "Le trésor de monnaies de bronze de la forteresse proto-byzantine de Veliki Gradac," *Numizmatičar* 7 (1984): 39–47. **Copper Hoard 91.**

LAST COIN: 595/96

283. Bosman, near Negotin (Serbia); V. Kondić, "Le trésor de monnaies de bronze de la forteresse protobyzantine de Bosman," *Numizmatičar* 7 (1984): 51–54. **Copper Hoard 92.**
284. Caričin Grad, near Lebane (Serbia); Popović, "Petits trésors" (see no. 85), 77–79; *TMB* 299. **Copper Hoard 93.**
285. Rakita, near Pleven (Bulgaria); *TMB* 316.
286. Resets, near Pleven (Bulgaria); *TMB* 317–18.

LAST COIN: 597/98

287. Belovo, district of Pazardzhik (Bulgaria); *TMB* 125–26. **Copper Hoard 94.**
288. Histria, district of Constanța (Romania); hoard found in 1954; Preda and Nubar, *Histria* (see no. 280), 228–29. **Copper Hoard 95.**
289. Horgești, district of Bacău (Romania); V. Căpitanu, "Tezaurul de monede bizantine descoperit la Horgești, jud. Bacău," *Carpica* 4 (1971): 253–69; C. Buzdugan, "Notă suplimentară despre tezaurul bizantin de la Horgești (jud. Bacău)," *Carpica* 6 (1973): 47–53. **Copper Hoard 96.**

LAST COIN: 599/600

290. Movileni, district of Galați (Romania); accidentally found in 1938 in a ceramic container; 26AE; O. Iliescu,

"Tezaurul de monede de bronz de la Movileni (jud. Galați)," *Creșterea colecțiilor BAR: Caiet selectiv de informare* 51 (1975): 20–31 (according to whom the last two coins have been struck for Maurice); G. Poenaru-Bordea, "Monnaies byzantines des VI^e–VII^e siècles en Dobroudja," in *Actes du XIV^e Congrès international des études byzantines, Bucarest, 6–12 septembre 1971* (see no. 172), 395 with n. 49 (who identifies the last two coins as of Heraclius). **Copper Hoard 97.**

LAST COIN: 600/601

291. Histria, district of Constanța (Romania); hoard found in 1950; Preda and Nubar, *Histria* (see no. 280), 231. **Copper Hoard 98.**

LAST COIN: 601/2

292. Bŭlgarevo, near Varna (Bulgaria); Gerasimov, "Monetni sŭkrovishta" (see no. 90), 229.

LAST COIN: 606/7

293. Kluk, district of Nymburk (Czech Republic); Kuna and Profantová, *Počátky* (see no. 3), 284.

LAST COIN: 607/8

294. Chalkis, Evvoia (Greece); *TMB* 231. **Copper Hoard 99.**

LAST COIN: 607–9

295. Malaisina, Phthiotis (Greece); *TMB* 255.
296. Paiania, East Attica (Greece); *TMB* 263.

LAST COIN: 609/10

297. Patras (Greece); hoard found in 1987; *TMB* 265.

LAST COIN: 602–10

298. Bernecze, Nógrád county (Hungary); F. Rómer, "Magyar régészeti krónika," *Archaeologiai Közlemények* 4 (1864): 164.
299. Goren Kozjak, near Štip (Bargala, Macedonia); Hadži-Maneva, "Coin Hoards" (see no. 259), 49.
300. Kupušina, near Apatin (Serbia); Somogyi, *Byzantinische Fundmünzen* (see no. 244), 62 and 138–39.
301. Pellene, Laconia (Greece); hoard found in 1982; *TMB* 267.
302. Vasaras, Laconia (Greece); *TMB* 287.

LAST COIN: 610/11

303. Râncăciuv, district of Argeș (Romania); G. Poenaru-Bordea and P. I. Dicu, "Monede romane tîrzii și bizantine (sec. IV–XI) descoperite pe teritoriul

județului Argeș,” *Studii și cercetări de numismatică* 9 (1989): 79.

LAST COIN: 610-13

304. Bakırköy, in Istanbul (Turkey); *TMB* 118.

LAST COIN: 613

305. Caričin Grad, near Lebane (Serbia); hoard found in 1953; Popović, “Petits trésors” (see no. 85), 80–81; *TMB* 80–81. **Copper Hoard 100.**

LAST COIN: 614/15

306. Sofia (Bulgaria); B. Bochkova, “Sükrovishte ot ranovizantiiski moneti ot Sofia,” *Numizmatika i sfragistika (Sofia)* 7, no. 2 (2000): 18–37. **Copper Hoard 102.**

LAST COIN: 615/16

307. Nea Anchialos, Magnesia (Greece); D. M. Metcalf, “The Aegean Coastlands under Threat: Some Coins and Coin Hoards from the Reign of Heraclius,” *BSA* 57 (1962): 21–22. **Copper Hoard 104.**
308. Politika-Psachna, Evvoia (Greece); Metcalf, “Aegean Coastlands” (see no. 307), 22. **Copper Hoard 103.**

LAST COIN: 613/16

309. Sane, Central Macedonia (Greece); *TMB* 192–93.
310. Varna (Bulgaria); hoard found in 1963; I. Lazarenko, “Numizmatichni dannii z datirane opozhariavaneto na Odesos po vremeto na Imperator Iraklii,” *Izv-Nar-Mus-Varna* 34–35 (1998–99): 151, 152, and 156. **Copper Hoard 101.**

LAST COIN: 617/18?

311. Thasos (Greece); Picard, “Trésors et circulation monétaire” (see no. 20), 451–52. **Copper Hoard 105.**

LAST COIN: 619/20

312. Solomos (Greece); hoard found in 1938; *TMB* 274–75.

LAST COIN: 613-29

313. Catalça, in Istanbul (Turkey); *TMB* 118–19.
314. Firtușu, district of Harghita (Romania); *TMB* 416–17.
315. Nesebŭr (Bulgaria); *TMB* 141.
316. Potkom, near Zrmanja (Croatia); I. Mirnik, “Skupni nalazi novca iz Hrvatske IX: Skupni nalaz Heraklijevih zlatnika iz Zrmanje,” *Vjesnik Arheološkog Muzeja u Zagrebu* 23, no. 2 (1990): 163–71.
317. Valandovo (Macedonia); Mikulčić, *Spätantike und frühbyzantinische Befestigungen* (see no. 7), 112.

LAST COIN: 615-24

318. Thasos (Greece); hoard found in 1979; *TMB* 198. **Copper Hoard 106.**

LAST COIN: 615-29

319. Bartymskii klad vizantiiskikh serebrianykh monet VII veka,” *Numismaticheskii sbornik* 2 (1957): 70–76.
320. Shestakovo, region of Perm (Russia); Kropotkin, *Klady* (see no. 14), 26.

LAST COIN: 615-38?

321. Akalan, in Istanbul (Turkey); I. Iurukova, “Sükrovishteto ot Akalan,” *Numizmatika i sfragistika (Sofia)* 1–2 (1992): 10–16.

LAST COIN: 616-25

322. Solomos, Corinthia (Greece); hoard found in 1956; *TMB* 274.
323. Udești, district of Suceava (Romania); M. Gogu, “Monedele bizantine aflate în colecția numismatică a Muzeului Național al Bucovinei din Suceava,” *Suceava* 26–28 (1999–2001): 296–97.

LAST COIN: 629-32

324. Gorna Oriakhovitsa (Bulgaria); *TMB* 274.

LAST COIN: 630/31

325. Solin, near Split (Croatia); I. Marović, “O godini razorenja Salone,” *Vjesnik za arheologiju i historiju Dalmatinsku* 99 (2006): 253–72. **Copper Hoard 107.**

LAST COIN: 633/34

326. Athens (Greece); hoard found in 1972; *TMB* 227.

LAST COIN: 630-41

327. Maistrov, region of Zaporyzhzhia (Ukraine); Kropotkin, *Klady* (see no. 13), 31–32.

LAST COIN: CA. 641

328. Makukhivka, region of Poltava (Ukraine); Kropotkin, *Klady* (see no. 13), 178.

LAST COIN: 641-68

329. Hrozová, district of Bruntál (Czech Republic); Kuna and Profantová, *Počátky* (see no. 3), 286.

LAST COIN: 651-57

330. Poděbrady, district of Nymburk (Czech Republic); Kuna and Profantová, *Počátky* (see no. 3), 284.

LAST COIN: 655–58

331. Obârșeni, district of Vaslui (Romania); found in 1945; *TMB* 422–23. **Copper Hoard 108.**

LAST COIN: 659–68

332. Drăgășani, district of Vâlcea (Romania); Butnariu, “Răspîndirea monedelor bizantine” (see no. 25), 230.
333. Valandovo (Macedonia); V. Radić, “Nalaz srebrnog novca careva Iraklija i Konstanca II iz zbirke Narodnog Muzeja u Beogradu,” *Numizmatičar* 17 (1994): 78–80.

LAST COIN: 662–67

334. Gradec, district of Vinica (Macedonia); Hadži-Maneva, “Coin Hoards” (see no. 259), 51.

LAST COIN: 668/69

335. Zemiansky Vrbovok, near Banská Štiavnica (Slovakia); P. Radomerský, “Byzantské mince z pokladu v Zemianském Vrbovku,” *Památky Archeologické* 44 (1953): 109–22; A. Fiala, “K objavu miliarensé Constansa II. z pokladu zo Zemianského Vrbovku,” *Numismatický sborník* 17 (1986): 15–20.

LAST COIN: CA. 668

336. Athens (Greece); hoard found in 1876; *TMB* 227–28.
337. Nerežišće, Brač (Croatia); F. Bulić, “Skrovište zlatnih novaca, našasto u Nerežišćima,” *Vjesnik* 43 (1920): 199.

LAST COIN: 669–73

338. Sukko, region of Krasnodar (Russia); K. V. Golenko, “Klad vizantiiskikh monet VII v., naidennyi bliz Anapy,” *VizVrem* 26 (1965): 162–65.

LAST COIN: 668–85

339. Piuia Petrii, district of Ialomița (Romania); P. A. Yan-nopoulos, *L’hexagramme, un monnayage byzantin en argent du VII^e siècle* (Louvain-la-Neuve, 1978), 105.
340. Vârtop, district of Dolj (Romania); B. Mitrea, “Découvertes monétaires en Roumanie, 1976 (XX),” *Dacia* 21 (1977): 380–81.

LAST COIN: 674–81

341. Galați (Romania); *TMB* 168.
342. Priseaca, district of Olt (Romania); B. Mitrea, “Date noi cu privire la secolul VII: Tezaurul de hexagrame bizantine de la Priseaca (jud. Olt),” *Studii și cercetări de numismatică* 6 (1975): 113–25.
343. Sofia (Bulgaria); *TMB* 357.

LAST COIN: 685–95

344. Hellmonsödt, near Linz (Austria); Hahn, “Die Fundmünzen” (see no. 106), 458.
345. Varna (Bulgaria); *TMB* 158.
346. Nesebür (Bulgaria); V. Penchev, “Kolektivna nakhodka ot medni vizantiiski moneti ot vtorata polovina na VII v., namerena v Nesebür,” *Numizmatika* 25, nos. 3–4 (1991): 5–9.

APPENDIX 2

Sixth- to Seventh-Century Byzantine Balance Finds in East Central and Southeastern Europe

Below are listed all known balances found in East Central and Southeastern Europe. Place names in bold indicate balances found in hoards listed in appendix 1. For more background on this list, see above, 54 n. 55.

1. Bitola (Macedonia); found inside the late Roman city of Heraclea Lyncestis; A. Dzhordzhievskia, “Avaro-slovenski momenti vo Heraclea Lyncestis,” in *Etnogenez i etnokul’turnye kontakty slavian*, ed. V. V. Sedov (Moscow, 1997), 71; 69 fig. 3.9.
2. Brno, Southern Moravia (Czech Republic); found in 1931 in an inhumation grave, together with craftsman tools (hammer, scraping tool, file, tongs, anvil, and

wimble), stone and lead weights, and weapons (spear-head); F. Daim, M. Mehofer, and B. Tobias, “Die langobardischen Schmiedegräber aus Poysdorf und Brno: Fragen, Methoden, erste Ergebnisse,” in *Die Langobarden: Herrschaft und Identität*, ed. W. Pohl and P. Erhard (Vienna, 2005), 204–5 and 206; 218 fig. 4.4.

3. Caričin Grad, near Lebane (Serbia); 3 fragmentary levers found in the course of the excavations in the southwestern residential quarter of the Lower Town; B. Bavant, “Les petits objets,” in *Caričin Grad*, vol. 2, *Le quartier sud-ouest de la ville haute*, ed. B. Bavant, V. Kondić, and J.-M. Spieser (Belgrade and Rome, 1990), pl. 4.4.296–98, 300–301; 244 fig. 172; 245 fig. 173.

4. **Dragoinovo, district of Plovdiv (Bulgaria);** found in a hoard of coins; T. Gerasimov, "Kolektivni nakhodka na moneti," *Izv.Arh.Inst* 17 (1950): 324.
5. Garvăn, Tulcea district (Romania); found during the 1946 excavations of a late Roman building; bronze; only the lever and two hooks have been preserved; the excavator identified the letter γ on the arm and concluded that the measurements were in ounces, up to 60 pounds (19.647 kg). The inscription on the lever reads +ΕΠΙΤΟΥΜΓΕΠΑΡΧ ΠΟΛΕΩΣΓΕΡΟΝΤΙΟΥ — + ἐπὶ τοῦ μ(ε)γ(α)λοπρεπεστάτου ἐπαρχ(ου) πόλεως Γερωντίου—which may very well refer to Gerontius, eparch of Constantinople during the last years of Justinian's reign (ca. 560); G. Ștefan, "Numele unui praefectus Urbi pe o inscripție din Dobrogea din secolul al VI-lea e.n.," in *Omăgiu lui P. Constantinescu-Iași, cu prilejul împlinirii a 70 de ani* (Bucharest, 1965), 141–44.
6. Gornji Streoc, near Vučitrn, Kosovo (Serbia); complete lever; V. Ivanišević and P. Špehar, "Early Byzantine Finds from Čečan and Gornji Streoc (Kosovo)," *Starinar* (2005): 141; 140 fig. 4.1.
7. **Hajdučka Vodenica near Negotin (Serbia);** found in a hoard of coins, together with bronze weights; V. Kondić, "Le trésor de monnaies d'or de Hajdučka Vodenica (limes Danubien)," in *Caričin Grad, vol. 1, Les basiliques B et J de Caričin Grad, quatre objets remarquables de Caričin Grad, le trésor de Hajdučka Vodenica*, ed. N. Duval and V. Popović (Belgrade and Rome, 1984), 179–88.
8. Hegykő, Győr-Sopron county (Hungary); found in grave 34; I. Bóna, "Fünf Jahre Langobardenforschung in Pannonien (Neue Beiträge zu der Archäologie und Geschichte der Langobarden)," *Régészeti Dolgozatok* 3 (1961): 41.
9. Jelica, near Čačak (Serbia); two fragmentary levers found inside the late Roman fortress; M. Milinković, "Die byzantinische Höhenanlage auf der Jelica in Serbien—ein Beispiel aus dem nördlichen Illyricum des 6. Jh.," *Starinar* 51 (2001): 124 fig. 38.3, 4.
10. Jutas, in Veszprém (Hungary); found in grave 166, together with 2 exagia (one of bronze, the other of glass) and craftsman tools (files, wimble, tongs, scraping tool), bronze; G. Rhé and N. Fettich, *Jutas und Öskü: Zwei Gräberfelder aus der Völkerwanderungszeit in Ungarn* (Prague, 1931), 32; pl. 8.16–17.
11. Kölked-Feketekapu, Baranya county (Hungary); found in grave 373 of cemetery A; É. Garam, *Funde byzantinischer Herkunft in der Awarenzeit vom Ende des 6. bis zum Ende des 7. Jahrhunderts* (Budapest, 2001), pl. 121.2.
12. Kranj (Slovenia); found in grave 11, together with weapons (sword and dagger) and craftsman tools (chisel); fragmentary lever; bronze; V. Stare, *Kranj: Nekropola iz časa preseljevanja ljudstev* (Ljubljana, 1980), 106; pl. 8.10.
13. Kranj (Slovenia); found in grave 595 together with a bronze weight; Stare, *Kranj*, 123; pl. 127.1.
14. Kunszentmárton, Jász-Nagykun-Szolnok county (Hungary); found in a "princely" grave together with weapons, craftsman tools, and bronze weights; D. Csallany, *A Kunszentmártoni avarkori ötvössír* (Szeged, 1933); Garam, *Funde*, pl. 120.1.
15. Montana (Bulgaria); bronze; lever, chains, and hooks; G. Aleksandrov, "Rezultati razkopkrite na krepostta Montana (1971–1982)," in *Montana*, ed. V. Velkov (Sofia, 1987), 66–80; fig. 35.
16. **Niš (Serbia);** found in a hoard of coins, together with an iron die, a bronze earring with polyhedral pendant, and a bronze pin with chain and cross; Z. Vinski, "Krstoliki nakit epohe seobe naroda u Jugoslaviji," *Vjesnik arheološkog muzeja u Zagrebu* 3 (1968): 109.
17. Olympia (Greece); found in the house excavated in 1878 between the northeastern corner of the palaestra and the gate to the Gymnasium of Olympia; 2 hooks; T. Völling, "Neuer Most aus alten Löwenköpfen: Ein frühbyzantinisches Gemach der alten Grabung in Olympia," *MDAI* 111 (1996): 397 with fig. 6.
18. Pazarište, near Novi Pazar (Serbia); found in the layer above the floor of the three-aisled basilica on the bank of the river Raška; complete lever; M. Popović, "The Early Byzantine Basilica at Ras," *Starinar* 48 (1997): 100 with fig. 9.
19. Pókaszeptek, Zala county (Hungary); found in grave 360; A. C. Sós and A. Salamon, *Cemeteries of the Early Middle Ages (6th–9th Centuries A.D.) at Pókaszeptek* (Budapest, 1995), pl. 22.13.
20. Polhov Gradec near Ljubljana (Slovenia); Z. Vinski, "Haut Moyen Age," in *Epoque préhistorique et proto-historique en Yougoslavie—recherches et résultats*, ed. G. Novak, A. Benac, M. Garašanin, and N. Tašić (Belgrade, 1971), 388.
21. Prahovo, near Negotin (Serbia); fragmentary lever; bronze; Đ. Janković, *Podunavski deo oblasti Akvisa u VI i početkom VII veka* (Belgrade, 1981), 213–14 and pl. 19.1–3.
22. Razgrad (Bulgaria); bronze; complete scale; T. Ivanov and S. Stoianov, *Abritus: Its History and Archaeology* (Razgrad, 1985), fig. 56.
23. Razgrad (Bulgaria); found in a small hoard; bronze; lever and pans; G. Dzanev, "Kolektivna nakhodka na kúsnoantichni kontrolni merki za teglo ot Abritus," in *Numizmaticzni i sfragistichni prinosi kúm istoriata na zapadnoto Chernomorie: Mezhdunarodna konferentsiia*,

- Varna, 12–15 septemvri 2001 g., ed. V. Iotov and I. Lazarenko (Varna, 2004), 207–8 and 208 fig. 1.
24. Rogatac, near Novi Pazar (Serbia); found in the fortress at Kulina; complete lever; D. Premović-Aleksić, “Kasnoantichka i ranovizantijska utvrdjenja u Novopazarskom kraju,” in *Niš i Vizantija: Drugi naučni skup Niš, 3–5. jun 2003; Zbornik radova*, ed. M. Rakocija (Niš, 2004), 175; 169 pl. 3.8.
 25. Sadovets, near Pleven (Bulgaria); 4 fragmentary levers found during Ivan Velkov’s 1935–36 excavations in the Golemanovo kale fortress; one of them bears the inscription +EVCT[AX]IOV; S. Uenze, *Die spätantiken Befestigungen von Sadovec (Bulgarien): Ergebnisse der deutsch-bulgarisch-österreichischen Ausgrabungen 1934–1937* (Munich, 1992), 437–55; pls. 33.9, 34.1, 136.13, and 137.1.
 26. Sadovets, near Pleven (Bulgaria); fragmentary levers found inside the Sadovsko kale fortress; I. Velkov, “Eine Gotenfestung bei Sadowetz (Nordbulgarien),” *Germania* 19 (1935): 149–58 and pl. 4.5; Uenze, *Die spätantiken Befestigungen*, pl. 33.10 and 12–13.
 27. Salona (Croatia); Vinski, “Haut Moyen Age” (see no. 20), 388.
 28. Sisak (Croatia); Vinski, “Haut Moyen Age” (see no. 20), 388.
 29. Stopiče, near Novo Mesto (Slovenia); Vinski, “Haut Moyen Age” (see no. 20), 388.
 30. Szolád, Somogy county (Hungary); found in grave 13, together with weapons (sword); weighing pan; U. von Freeden and T. Vida, “Ausgrabung des langobardenzeitlichen Gräberfeldes von Szólád, Komitat Somogy, Ungarn: Vorbericht und Überblick über langobardenzeitlichen Besiedlung am Plattensee,” *Germania* 85 (2005): 372; 371 fig. 7.4.
 31. Vranje near Sevnice (Slovenia); Vinski, “Haut Moyen Age” (see no. 20), 388.
 32. Zbelovsko Goro, near Celje (Slovenia); found in a hoard of iron implements and tools (adze, tongs, wimble) discovered in the fortress at Ljubična; *Od Rimljanov do Slovanov: Predmeti*, ed. P. Bitenc and T. Knific (Ljubljana, 2001), 58.
 33. Zheglitsa, district of Vidin (Bulgaria); found in the late Roman fortress; bronze; T. Gerasimov, “Nakhodki v razvalinite na rannovizantijsko gradishte pri s. Zheglitsa,” *IzvArhInst* 15 (1946): 203–5; 204 fig. 110.

APPENDIX 3

Sixth-Century Bronze Weights for 3 Solidi, 1 Solidus, and 1 Semissis Found in the Balkans

Below are listed all known bronze weights (3 solidi, 1 solidi, and 1 semissis) found in the Balkans. Place names in bold indicate bronze weights found in hoards listed in appendix 1.

1. **Abrit, district of Dobrich (Bulgaria)**; rectangular, marked NT (3 solidi; 12.96 g); square, marked N (1 solidus; 4.38 g); square, marked N (1 solidus; 1.43 g); S. Torbatov, “Rannovizantijsko zlatno monetno sükrovishte ot Zaldapa (provintsiia Skitiia),” *Numizmatika i sfragistika* (Sofia) 5, no. 1 (1998): 64–65; 67 pl. 1.7–9.
2. **Abrit, district of Dobrich (Bulgaria)**; bronze; square, marked N (1 solidus); 4.29 g; G. Dzanev, “Kolektivna nakhodka na küsnoantichni kontrolni merki za teglo ot Abritus,” in *Numizmatichni i sfragistichni prinosi küm istoriia na zapadnoto Chernomorie: Mezhdunarodna konferentsiia, Varna, 12–15 septemvri 2001 g.*, ed. V. Iotov and I. Lazarenko (Varna, 2004), 208.
3. **Bülgarevo, district of Dobrich (Bulgaria)**; bronze; square, marked B (1 semissis); 2.12 g; A. Minchev, “Early Byzantine Weights Found in Northeastern Bulgaria and Some Notes on Their Production, Distribution, and Notes,” in *Numizmatichni, sfragistichni i epigrafski prinosi küm istoriia na Chernomorskoto kraibrezhie: Mezhdunarodna konferentsiia v pamet na st. n. s. Milko Mirchev, Varna 15–17 septemvri 2005 g.*, ed. I. Lazarenko (Varna, 2008), 11.
4. **Borovan, district of Vratsa (Bulgaria)**; bronze; square, marked N (1 solidus); 4.29 g; S. Mashov, “Küsnoantichni i rannovizantijski merki za tezhest v kolektsiia na istoricheskiia muzei vüv Vratsa,” *Izvestiia na Muzeite v Severozapadna Bülgariia* 25 (1997): 60.
5. **Butan, district of Vratsa (Bulgaria)**; bronze; square, marked N (1 solidus); unknown weight (4 specimens); D. Antonov, “Ancient Finds from the Vicinity of Butan, Vratsa District (1st–6th C.),” in *Stephanos archaeologicos in honorem Professoris Ludmili Getov*, ed. R. Donkov (Sofia, 2005), 23; 27 fig. 9.5, 7–9.
6. **Butrint near Saranda (Albania)**; square, marked N (1 solidus); 4 g; P. Guest, J. Mitchell, E. Nallbani, and S. Gongecaj, “The Small Finds and Coins,” in *Byzantine Butrint: Excavations and Surveys, 1994–99*, ed. R. Hodges, W. Bowden, and K. Lako (Oxford, 2004), 295; 296 fig. 16.8.

7. Corinth (Greece); square, marked N (1 solidus); unknown weight; G. R. Davidson, *The Minor Objects* (Princeton, 1952), 205, 209 and pl. 94.1590.
8. Devnia, district of Varna (Marcianopolis, Bulgaria); bronze, square, marked N (1 solidus); 5.61 g; Minchev, "Early Byzantine Weights" (see no. 3), 14.
9. Dragoevo, district of Shumen (Bulgaria); bronze; square, marked B (1 semissis); Minchev, "Early Byzantine Weights" (see no. 3), 12.
10. Gornji Streoc near Vushtrri (Kosovo); square, marked N (1 solidus; 4.02 g); square, marked N (1 solidus; 3.85 g); V. Ivanišević and P. Špehar, "Early Byzantine Finds from Čečan and Gornji Streoc (Kosovo)," *Starinar* (2005): 142 with fig. 5.2, 3.
11. **Hajdučka Vodenica near Negotin (Serbia)**; unknown shape and weight; V. Kondić, "Le trésor de monnaies d'or de Hajdučka Vodenica (limes Danubien)," in *Caričin Grad*, vol. 1, *Les basiliques B et J de Caričin Grad, quatre objets remarquables de Caričin Grad, le trésor de Hajdučka Vodenica*, ed. N. Duval and V. Popović (Belgrade and Rome, 1984), 179–88.
12. Kamen vrākh, district of Iambol (Bulgaria); bronze; square, marked N (1 solidus); 4.32 g; P. Karailiev, "Rannovizantiiska miarka za tezhest," in Lazarenko, *Numizmatichni* (see no. 3), 42.
13. Kiten, district of Varna (Bulgaria); bronze; square, marked B (1 semissis); 2.01 g; Minchev, "Early Byzantine Weights" (see no. 3), 11.
14. Lomnica, district of Trān (Bulgaria); bronze; square, marked N (1 solidus); 4.32 g; E. I. Paunov, "Rimski i rannovizantiiski merki za tezhest ot zemite po Gorna Struma," *Izvestiia na Istoricheskiiia Muzei Kiustendil* 12 (2005): 105.
15. Markovo, district of Shumen (Bulgaria); bronze; square, marked N (1 solidus); 4.22 g; Minchev, "Early Byzantine Weights" (see no. 3), 14.
16. Modrište near Makedonski Brod (Macedonia); square, marked N (1 solidus); unknown weight; V. Lilčić, "Nauchno-istrzhuvachki projekt severo-zapadna Makedonija vo docnata antika i sredniot vek: Polog, Kichevija, Poreche," *Makedonsko nasledstvo* 2 (1996): 83 with fig.
17. Odŭrtsi, district of Dobrich (Bulgaria); bronze; square, marked N (1 solidus); 4.31 g; Minchev, "Early Byzantine Weights" (see no. 3), 14.
18. Onogur, district of Dobrich (Bulgaria); bronze; rectangular, marked NT (3 solidi; 11.27 g); square, marked N (1 solidus); 4.01 g; V. Iotov, "Ekzagii ot muzeite v Tolbukhin i Silistra," *Numizmatika* 22 (1988): 18 and pl. 1.
19. Osmar, district of Shumen (Bulgaria); bronze; square, marked N (1 solidus); 4.37 g; Minchev, "Early Byzantine Weights" (see no. 3), 14.
20. Partizani, district of Varna (Bulgaria); bronze; square, marked N (1 solidus); 4.33 g; Minchev, "Early Byzantine Weights" (see no. 3), 13.
21. Pernik (Bulgaria); bronze; square, marked N (1 solidus), 4.167 g; square, marked N (1 solidus), 4.274 g; square, marked N (1 solidus), 4.32 g; Paunov, "Rimski i vizantiiski merki za tezhest ot zemite po Gorna Struma" (see no. 14), 105 and 110 pl. 1.17, 18; I. Iurukova, "Contribution numismatique à la définition du caractère des agglomérations du VI^e siècle dans les Balkans," in *Mélanges de numismatique, d'archéologie et d'histoire offerts à Jean Lafaurie*, ed. P. Bastien et al. (Paris, 1980), 273 and pl. 28.2.
22. Prahovo, near Negotin (Serbia); bronze, square, marked N (1 solidus), 4.90 g; square, marked N (1 solidus), 4.30 g; square, marked N (1 solidus), 4 g; Đ. Janković, *Podunavski deo oblasti Akvisa u VI i pochetkom VII veka* (Belgrade, 1981), pl. 17. 7, 9, 10.
23. Razgrad (Abitus, Bulgaria); bronze; square, marked N (1 solidus); 2.14 g; Dzanev, "Kolektivna nakhodka" (see no. 2), 208.
24. Regiana, in Kozlodui (Bulgaria); bronze; square, marked N (1 solidus), 4.20 g; square, marked N (1 solidus), 4.20 g; square, marked N (1 solidus), 4.35 g; Mashov, "Kŭsnoantichni i rannovizantiiski merki" (see no. 4), 58 and 60.
25. Riakhovets, district of Gorna Oriakhovitsa (Bulgaria); square, marked N (1 solidus, 4.16 g); square, marked N (1 solidus, 4.25 g); D. Vladimirova, "Ekzagii ot Dolna Miziiia," *Numizmatika* 9, no. 1 (1985): 27–28; 24 pl. 1.3, 8.
26. Shumen (Bulgaria); square, marked NT (3 solidi, 12.6 g); square, marked N (1 solidus, 4.12 g); square, marked N (1 solidus, 4.32 g); square, marked N (1 solidus, 4.20 g); square, marked N (1 solidus); Vladimirova, "Ekzagii ot Dolna Miziiia" (see no. 25), 28; 24 pl. 1.4–6; 25 pl. 2.3; Mashov, "Kŭsnoantichni i rannovizantiiski merki" (see no. 4), 60.
27. Silistra (Bulgaria); square, marked N (1 solidus, 4.07 g); square, marked N (1 solidus, 4.33 g); square, marked N (1 solidus, 4.26 g); square, marked N (1 solidus, 3.60 g); square, marked N (1 solidus, 4.36 g); square, marked N (1 solidus, 3.84 g); Vladimirova, "Ekzagii ot Dolna Miziiia" (see no. 25), 27; 24 pl. 1.1; Iotov, "Ekzagii ot muzeite" (see no. 18), 18; 19 pl. 1.
28. **Skačinci near Veles (Macedonia)**; bronze (?); marked B (1 semissis); 2.15 g; V. Lilčić and K. Adžievski, "Coin Hoard Discovered in the Veles District," *Macedonian Numismatic Journal* 3 (1999): 73.
29. Stan, district of Shumen (Bulgaria); bronze; square, marked N (1 solidus); 4.18 g; Minchev, "Early Byzantine Weights" (see no. 3), 14.

30. Stanata, district of Shumen (Bulgaria); square, marked N (1 solidus, 4 g); Vladimirova, "Ekzagii ot Dolna Miziia" (see no. 25), 28; 24 pl. 1.7.
31. Sveti Nikola, district of Dobrich (Bulgaria); bronze; square, marked B (1 semissis); 2.16 g; Minchev, "Early Byzantine Weights" (see no. 3), 11.
32. Variana, district of Oriakhovo (Bulgaria); bronze; square, marked N (1 solidus); 4.35 g; Mashov, "Kŭsnoantichni i rannovizantiiski merki" (see no. 4), 60.
33. Voivoda, district of Shumen (Bulgaria); bronze; square, marked B (1 semissis); Minchev, "Early Byzantine Weights" (see no. 3), 11–12.
34. Zhelŭd, district of Shumen (Bulgaria); bronze; square, marked B (1 semissis); 2.06 g; Minchev, "Early Byzantine Weights" (see no. 3), 11.
35. Unknown location (probably in Bulgaria); bronze; square, marked N (1 solidus, 3.48 g); square, marked N (1 solidus, 5.70 g); square, marked N (1 solidus, 4.26 g); square, marked N (1 solidus, 3.43 g); square, marked N (1 solidus, 4.28 g); square, marked N (1 solidus, 3.98 g); square, marked N (1 solidus, 4.06 g); Minchev, "Early Byzantine Weights" (see no. 3), 14–15.
36. Unknown location (probably Greece); square, marked NT (3 solidi, 13.40 g); square, marked N (1 solidus, 4.41 g); square, marked N (1 solidus, 4.39 g); square, marked N (1 solidus, 4.38 g); square, marked N (1 solidus, 4.33 g); square, marked N (1 solidus, 4.32 g); square, marked N (1 solidus, 4.27 g); square, marked N (1 solidus, 4.25 g); square, marked N (1 solidus, 3.97 g); square, marked N (1 solidus, 3.84 g); square, marked N (1 solidus, 3.73 g); V. Vasilopoulou, "Byzantinà stathmía tou Nomismatikoŭ Mouseiou Athinŏn: Symbolŭ stŭ melŕtŭ tou byzantinou stathmetikoŭ systŕmatos," *Arch. Eph.* 122 (1983): 262–63.